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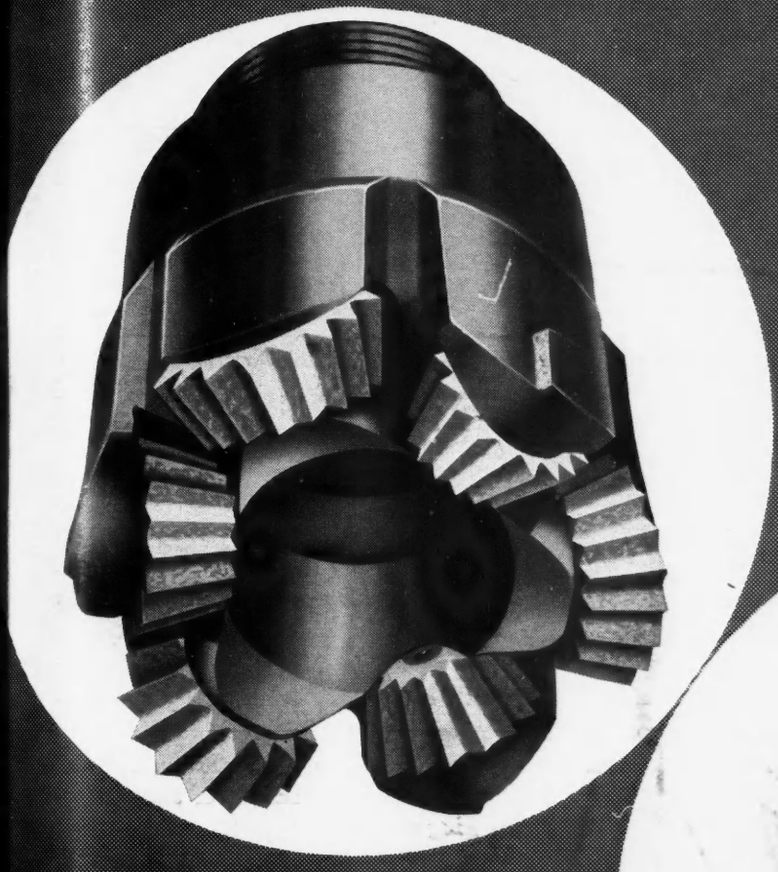

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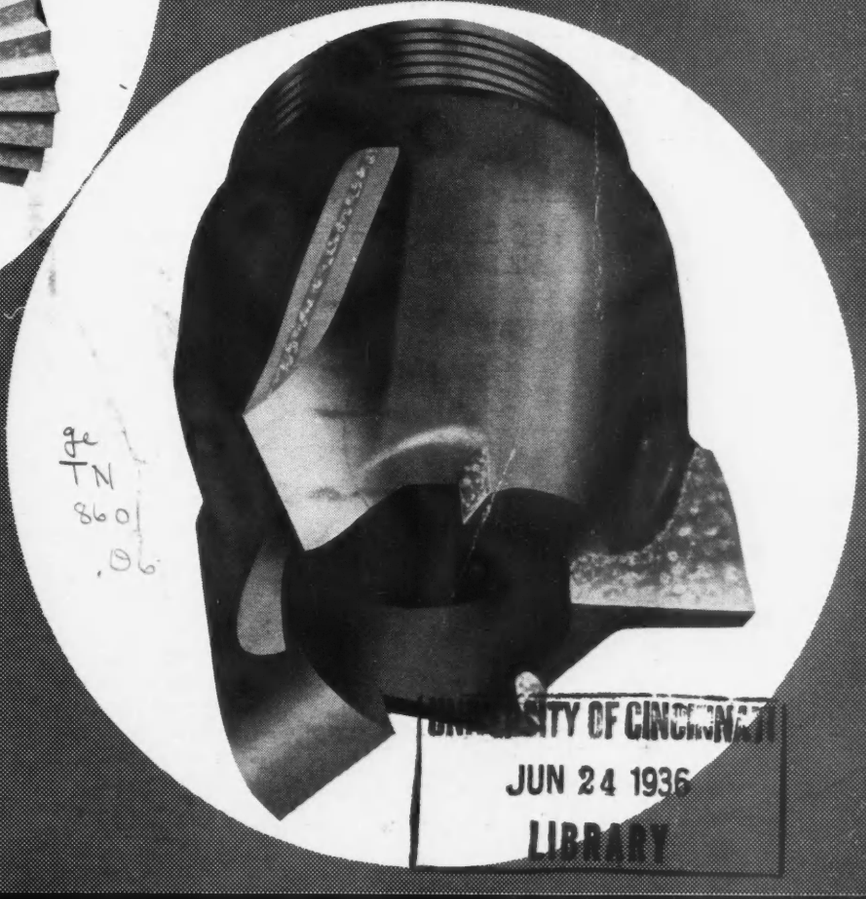

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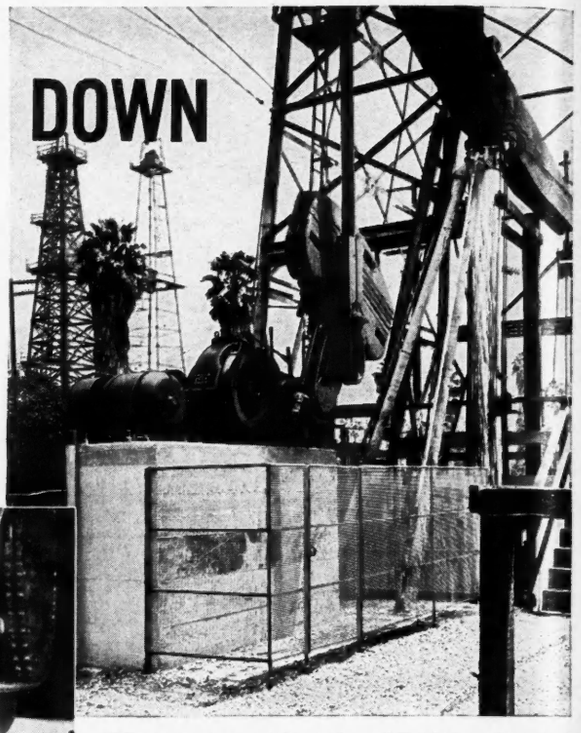

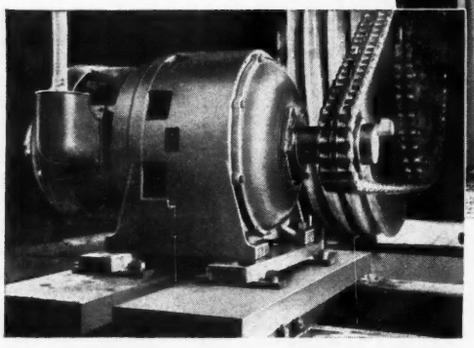

G-E gear-motor, triple-rated, low-starting-current, squirrel-cage induction motor, chain-connected to beam pump in Oklahoma oil-field

G-E splashproof, squirrel-cage induction motor installed outdoors on well-pumping rig, Santa Fe Springs, Calif.

WHEN you equip your new wells, do so with an eye to the future, when pressures will be less, and it will therefore be necessary to pump continuously to supply the demand. Electric pump drives are the answer. Electric motors and matched control give long life, their maintenance cost is low, and, above all, they give you 24-hour availability when you need it.

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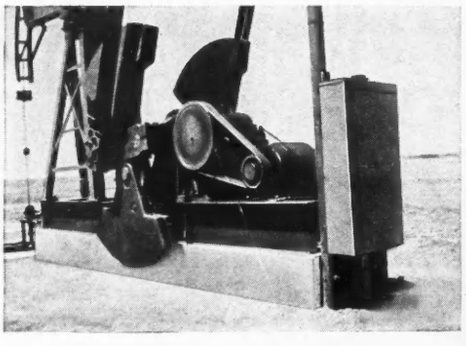
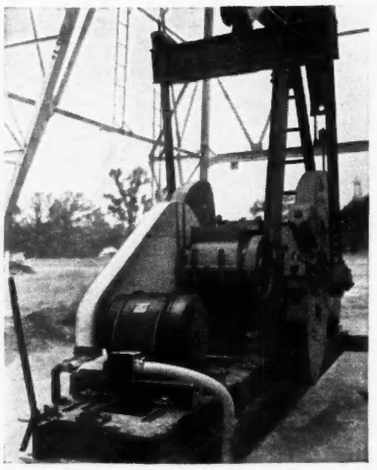


G-E ball-bearing, high-torque splashproof induction motor, driving pumping unit in Texas Panhandle. Weatherproof control unit in the foreground



G-E triple-rated, ball-bearing motor, splashproof design, coupled to a Lufkin reduction-gear pumping unit in the East Texas oil field. Note the weatherproof terminal box in the foreground. Weatherproof control, not shown in the picture, includes automatic starting and stopping by a G-E time switch

020-241H

GENERAL ELECTRIC

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $2.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

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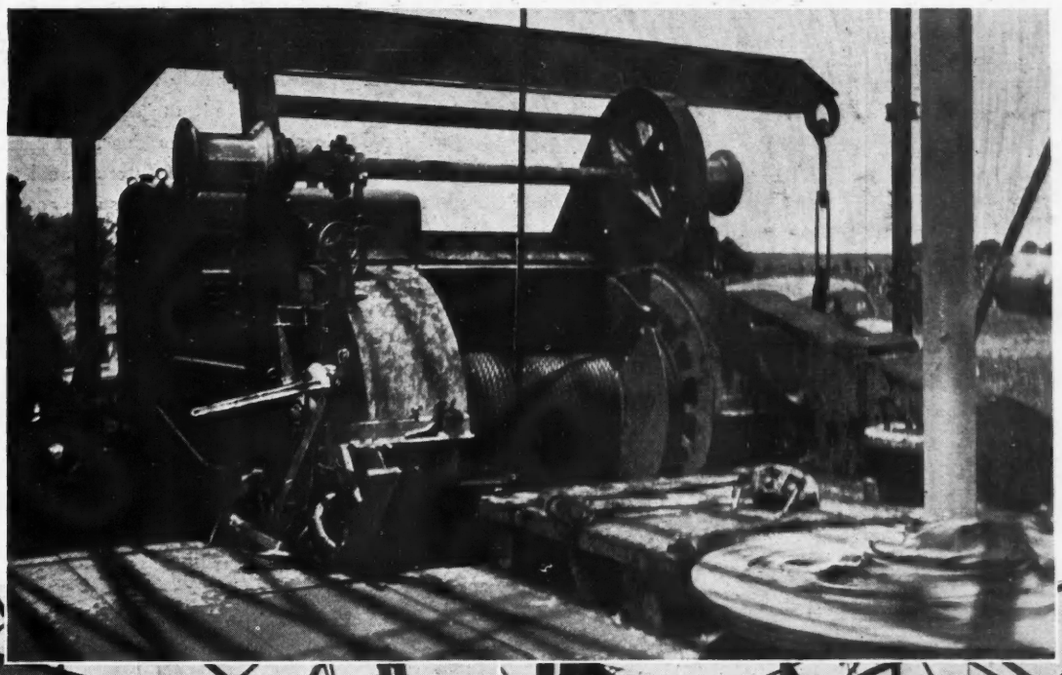

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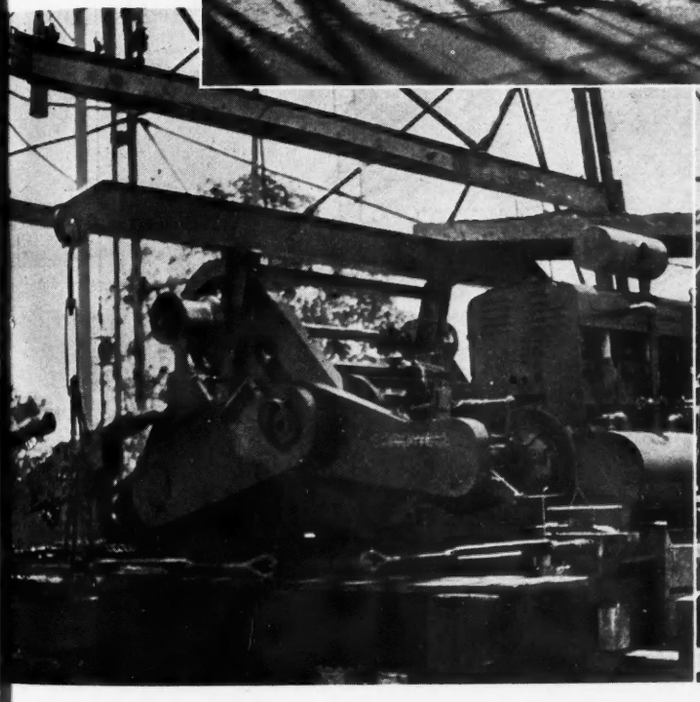

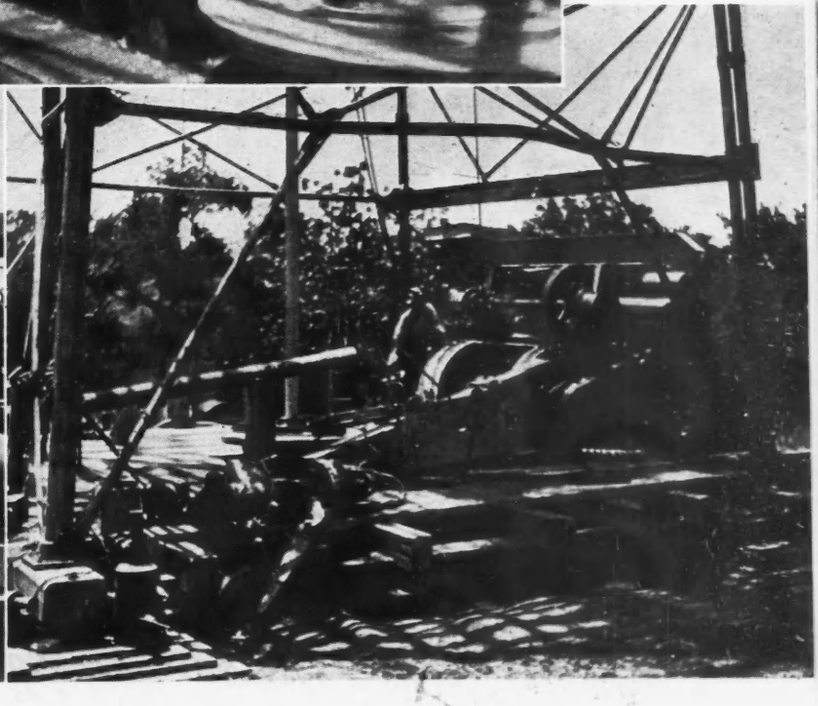

This Draw Works powered with 112 HP gasoline motor, complete $6,670.00 F. O. B. Wichita, Kansas. The same unit with 173 HP gasoline motor for 4,500 foot 4" drill pipe $8,645.00 F. O. B. Wichita. Also available with Diesel motors, price on application.

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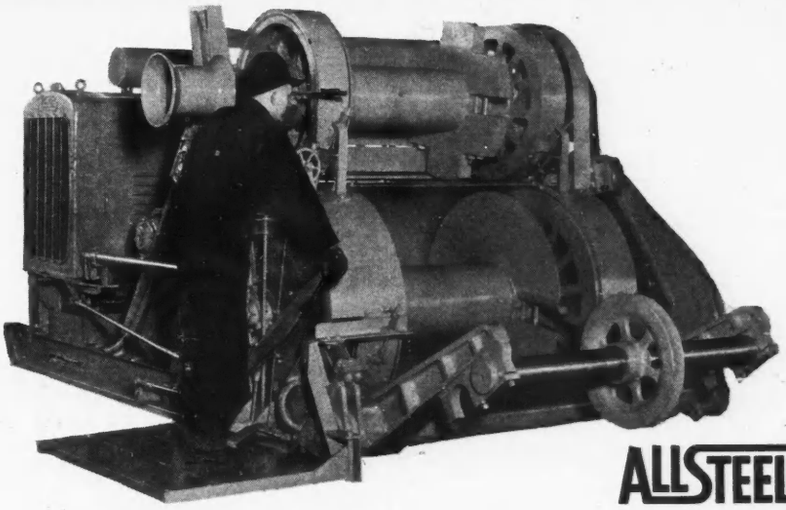

This is the same unit as above with upper drum and spudder for standard tool drilling to 4,000 feet with 112 HP gasoline motor, or 5,000 feet with 172 HP motor.

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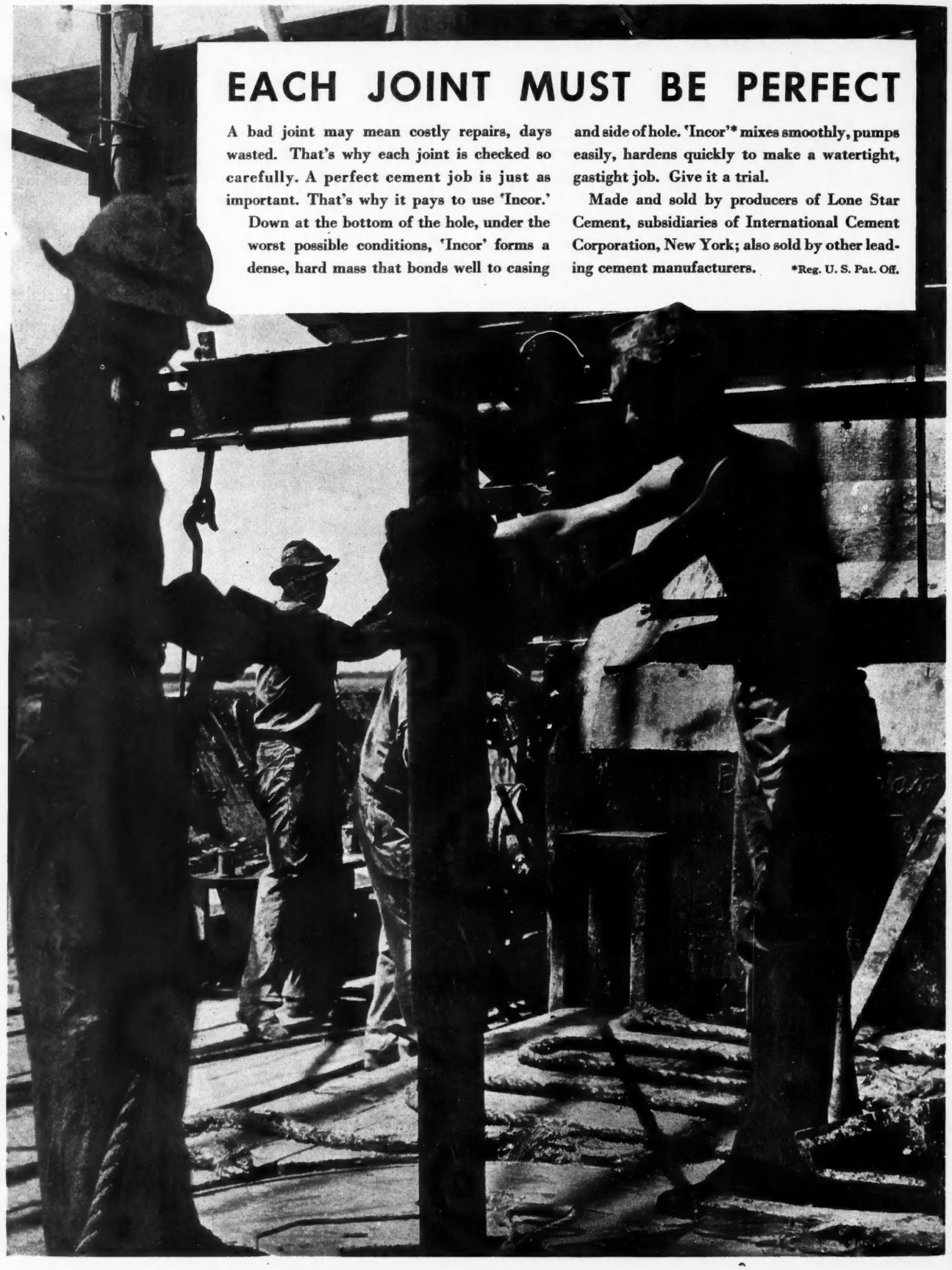

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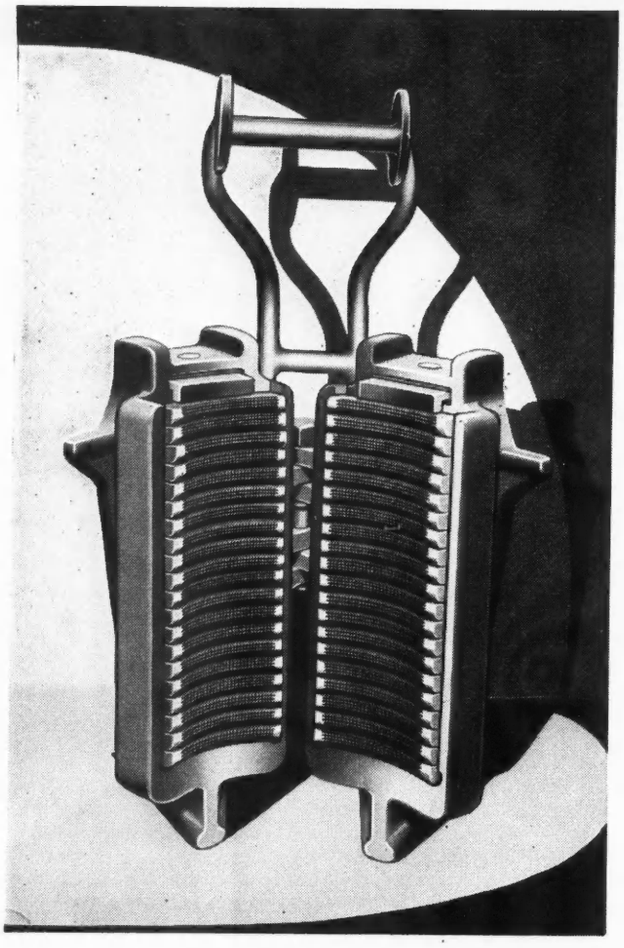
FOR DEEP WELLS AND ALL WELLS



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THE OIL WEEKLY

FOR OIL AND GAS PRODUCERS
AND PIPE LINE MEN

ENGINEERING NEWS STATISTICS

WARREN L. BAKER, Editor.

. . . this Week

THE Texas Railroad Commission has issued its July proration order, which cut the state allowable 56,000 barrels daily. This is in keeping with the action started by Oklahoma and Kansas the preceding month, and also conforms to recommendations of the United States Bureau of Mines and Texas operators. A few days prior to writing of the order, testimony at a statewide hearing indicated that the production allocation probably would be reduced. **Page 8.**

CUTTING back of the allowable for the state of Texas brightens appreciably the outlook for the crude oil market. Other states are expected to hold their production in line, and no doubt July will pass into history as a very successful month for the industry. Early fear that the crude oil prices would not hold throughout the summer has been eliminated practically altogether. **Page 11.**

A BILL of sale transferring the ownership of the Eastern Texas Pipe Line Company's Rodessa to East Texas system from Freeman W. Burford to W. F. Hartwig, president of United Gas System, Houston, has been filed. This definitely concludes the rumored sale of this transmission system, which was used to move a large volume of oil from the property of Pelican Oil & Gasoline Company in the Rodessa field. Rumors continue to persist that a number of companies are negotiating for the purchase of the Pelican Oil & Gasoline Company's Sexton lease at Rodessa, but no definite announcements have been made. **Page 8.**

OPERATORS in Talco field, the most recently discovered flush oil area in East Texas, apparently are content to bide their time rather than dispose of their Paluxy oil at distress prices. Fifty cents is being offered by those unwilling to pay the posted price, but the bidders are finding no takers.

TECHNICAL and legal activities of the Pennsylvania Grade Crude Oil Association were considered at its Thirteenth Annual Meeting along with the organization's routine business matters. Resolutions urging the repeal of federal taxes on lubricating oil and gasoline were passed, while another protested the levying of a tax on fuel oil within the state of Pennsylvania. Two new members were added to the board of directors, giving it 30 members. **Page 9.**

WHEN Humble Pipe Line Company converted one of its old crude oil transmission systems into a gasoline carrier running from East Texas to the Gulf Coast some interesting practices were employed. The old line was taken up and renovated completely, including a coating for corrosion protection. So as to eliminate contamination of any petroleum products, a cleaning process employing kerosene was used to flush out the line. **Page 42.**

WHILE Austria probably will develop small commercial production in a number of fields in the future, nothing in current geological knowledge of the nation would seem to warrant an opinion that the country will ever reach a point where cessation of imported crude and refined oil products will become an actuality. Dr. W. Petraschecк, professor of economic geology in Austria's leading technical university, the Mining University of Leoben, gives a concise picture of what has been accomplished and what may be expected of efforts to develop Austrian crude reservoirs. **Page 60.**

THE performance of wells in the South Burbank field of Oklahoma have been affected favorably by the steady injection of gas. A pressure maintenance program was inaugurated as a community effort in the field last year. This work has resulted in a uniform pressure, a slow pressure decline, and the assurance of a much longer flowing life than could be anticipated normally. The response of the formation to the steady injection of gas is being checked carefully, and the several advantages named above have been found apparent. **Page 19.**

W. T. PAYNE, drilling contractor, is using two full Diesel engines that transfer their power directly through a transmission to both the draw works and slush pumps. This is the first entirely Diesel rig to be used at Oklahoma City. Both engines rotate clockwise and are placed with the flywheel end facing each other, so forward and reverse may be obtainable readily through the arrangement of the power transmission. **Page 36.**

CIRCULATION losses, which are an old and common problem in rotary drilling, occur through the interstices of the grain of material comprising the formation being drilled. The sizes of such pore spaces are important. However, due to the capillary size of the pore spaces, they may be readily blocked by the introduction of a small amount of colloidal material deposited in the mouths of the capillary tubes comprising them. This blocking forms an impervious seal against fluid encroachment, thus protecting the formation from contamination as well as preventing losses of the fluid itself. **Page 24.**

The Oil Man's Calendar

JUNE 24–27	National Oil & Gas Power, 9th Annual Meeting, Ann Arbor, Michigan.
JULY 31	Interstate Oil Compact Commission, Dallas, Texas.
SEPT. 16–18	National Petroleum Association, Atlantic City, New Jersey. American Petroleum Institute, Division of Production, Mid-Continent District, Probably at Oklahoma City.
OCT.	American Institute of Mining and Metallurgical Engineers, Cleveland, Ohio.
NOV. 9–12	American Petroleum Institute, 17th Annual Meeting, Chicago, Illinois.
NOV. 30–DEC. 1	Independent Petroleum Association of America, Biltmore Hotel, Oklahoma City, Oklahoma.

Allowable Cut

RAILROAD COMMISSION ORDERS 56,723-BARREL REDUCTION

AUSTIN.

THE Texas Railroad Commission issued an order Friday cutting the state allowable 56,723 barrels per day. The order became effective Saturday, June 20, and provides for a total allowable of 1,127,843 barrels per day for the state. On June 15 the total allowable was 1,184,566 barrels per day. The Bureau of Mines found that the probable consumer demand for Texas oil for the month of July would be 1,146,500 barrels daily, 18,657 barrels above the allowance ordered by the commission.

Commission Chairman Ernest O. Thompson announced that in the future the commission would follow the practice of establishing a top allowable for each field. It was explained that through the enforcement of this policy allowables in fields where active drilling campaigns are in progress would not increase with the completion of each new well.

At the hearing Thursday the commission pointed out that increased drilling was one of the principal causes of the rapid growth in the allowable.

While the mechanics of this plan have not yet been worked out, the result will be to reduce the allowable of every well in the fields where the system is applied, as new wells take their place on the proration schedule. A constantly declining per-well allowance similar to those in East Texas will be effected.

East Texas Is Cut

In the order issued Friday East Texas took the largest share of the cut, 14,543 barrels per day. Wells will be permitted to produce 2.32 percent of the hourly potential, which means an allowable of approximately 23 barrels per day for the best well in the field. The allowable in effect prior to June 20 was 2.6 percent of the hourly potential. This is the second cut ordered by the commission within the past 60 days in an effort to arrest the rapidly declining pressure of the field. The estimated top allowable for June 20 was 425,000 barrels daily.

The cut was not confined to East Texas. The Panhandle was cut 1102 barrels to 59,490 barrels per day. North Texas was reduced 1122 barrels to 59,380 barrels per day. West Central Texas was reduced 4849 barrels to 53,294 barrels daily. West Texas was cut 7531 barrels to 150,179 barrels per day. East Central Texas was cut 1665 barrels to 53,716 barrels per day. Southwest Texas was cut 16,685 barrels to 148,115 barrels daily. The Gulf Coast was reduced 9116 barrels to 175,769 barrels per day.

All comparisons above are based on the allowables in effect on June 15, with those provided in the new order. The order extends from June 20 to August 1, indicating that another order may be expected at that time. As usual, reductions were ordered in nearly all of the larger flush fields.

Changes listed below are a comparison of the new order with that which became effective on May 20. In West Central Texas, Fisher County was cut 1151 barrels to 4310 barrels daily. Jones County was cut 441 barrels to 441 barrels. The South half of Young County was cut 564 barrels to 4126 barrels. The South half of Jack County was placed on the schedule for the first time as a separate unit and given an allowable of 2105 barrels.

In West Texas, Keyes was raised 510 barrels to 960 barrels. Sayre was raised 572 barrels to 5221 barrels. North Ward was cut 513 barrels to 7009 barrels, and South Ward was reduced 925 barrels to 14,346 barrels. Yates was cut 1567 barrels to 34,240 barrels.

Talco in East Central Texas was increased 474 barrels to 744 barrels. Rodessa was raised 2575 barrels to 4675 barrels. Van was cut 1231 barrels to 33,753 barrels per day.

Darst Creek in Southwest Texas was reduced 438 barrels to 8540 barrels daily. Dirks was cut 424 barrels to 4793 barrels. Greta (shallow) was cut 669 barrels to 13,201 barrels. Placedo was raised 424 barrels to 3337 barrels. Seven Sisters was raised 360 barrels to 5100 barrels per day.

In the Gulf Coast, Anahuac was cut 558 barrels to 6882 barrels per day. Blue Ridge was raised 556 barrels to 2235 barrels daily. Barbers Hill was cut 1167 barrels to 14,723 barrels. Conroe was cut 1072 barrels to 42,603 barrels. High Island was cut 403 barrels to 5842 barrels. Manvel was cut 592 barrels to 8213 barrels. Sugarland was reduced 410 barrels to 4712 barrels per day. Spindletop was cut 396 barrels to 2394 barrels per day. West Columbia was raised 740 barrels to 2382 barrels daily. Satsuma, a new Gulf Coast field, appeared on the schedule for the first time. An allowable of 100 barrels was assigned to it.

A cut of approximately three percent in the Texas allowable for July was indicated at the statewide hearing last week when officials of the Texas Railroad Commission revealed that the allowable on June 15 was approximately 38,000 barrels in excess of the demand for July as estimated by the Bureau of Mines.

The daily allowable on June 15 totaled 1,184,556 barrels, an increase of 43,206 barrels per day since the current order became effective on May 20. The Bureau of Mines reported that the estimated demand for Texas crude during the month of July was 1,146,500 barrels.

Constantly declining pressures in the East Texas field led V. E. Cottingham, commission petroleum engineer, to recommend a further reduction in the allowable there. Cottingham said that tests show a decline or 7.58 pounds in the bottom-hole pressure in East Texas from May 12 to June 12. This is a drop of .556 pounds per 1,000,000 barrels of allowable oil. During the period covered, the total allowable was 13,636,393 barrels, a daily average of 439,883 barrels.

Cottingham recommended an allowable of 425,000 barrels daily, which would mean a reduction of some 17,000 barrels in the East Texas allowable, and would probably permit production on 2.5 percent of the hourly potential of wells in the field.

During the course of the discussion on the various fields, operators requested that the commission follow the recommendation of the Bureau of Mines and cut Texas allowables. Houston Bowlin said he was informed that Kansas, Oklahoma and Louisiana would follow the lead of Texas and bring their production into line with the Bureau estimates.

PREDICTS SHORTAGE

Bureau of Mines speaker looks for early decline

HAMILTON, ONTARIO.

EXHAUSTION of known American oil reserves in 15 years was predicted this week by W. A. Selvig of the Bureau of Mines, speaking before the Annual Meeting of the Purchasing Agent's Association at Hamilton, Ontario.

Discussing the respective potentialities of coal and oil, Selvig told the purchasing agents that the known coal reserves should last several thousand years, only about one percent of the original reserves having thus far been consumed. However, he warned, the high grade coals, now chiefly mined, will first be exhausted and the bulk of the future supply consists of less desirable types.

Admitting that new oil reserves will be discovered, the mining expert declared that the frequency at which new fields are being found is declining and the necessity of supplementing oil with liquid fuel from coal may be encountered within the present generation.

While the percentage of total heat and power value contributed by coal has declined materially during the past decade, dropping from 74.3 percent in 1923 to 59.2 percent in 1934, which was less than the 67.1 percent in 1913, Selvig said, that contributed by oil has been steadily increasing, jumping from 9.3 percent in 1913 to 21.1 percent in 1923 and 30.5 percent in 1934. The contribution of natural gas also has increased, raising from 3.6 percent in 1913 to 4.6 percent in 1923 and 10.3 percent in 1934, he said.

RODESSA DEAL

Deeds for line recorded in name of United official

SHREVEPORT.

DEEDS conveying all of its pipe lines, gathering lines, rights-of-way, pumping stations, easements, tanks and telephone system to W. F. Hartwig of Houston, an official of United Gas System, were filed in Shreveport and Marshall, Texas, last week by East Texas Pipe Line Company and East-

ern Texas Petroleum Company. The consideration was not disclosed, the documents simply stating "for $100 and other valuable considerations."

The conveyance includes the East Texas Pipe Line Company's eight-inch Rodessa-Longview line extending from the Sexton lease of Pelican Oil & Gasoline Company in Section 14-23n-16w, Caddo Parish, Rodessa field, to Gregg County, Texas, a distance of 59 miles. The only exemption made from the sale was oil in transit or storage.

Shoreline Oil Company on June 18 began tying in its four-inch line from the Rodessa field to its Lewis, Caddo Parish, refinery to the Sexton lease and will handle the Pelican's connection for the present. Shoreline is headed by Col. E. M. Leonard.

Meanwhile negotiations continue for purchase of Pelican Oil & Gasoline Company's 120-acre Sexton lease in Section 14-23n-16w. It has 13 producing oil wells. The deal is said to be hanging fire over the amount of cash to be paid. Pelican wants $1,600,000 clear of about $460,000 of obligations, and this is satisfactory to all concerned, but the proposed purchaser offered only $500,000 cash and the rest from oil, while the seller is holding out for $700,000 cash. However, since the pipe line sale of East Texas Pipe Line Company has been closed it is likely consummation of the sale will be accelerated.

Outlook Is Good

PENNSYLVANIA CRUDE OIL ASSOCIATION OPTIMISTIC

STATE COLLEGE, PA.

THE directorate of the Pennsylvania Grade Crude Oil Association was increased by two members at the concluding business session of the Thirteenth Annual Meeting of the organization today. Two new members were chosen and the 28 men who had served for the past year were re-elected, bringing the membership of the present board to 30.

Friday's business session concluded a two-day program during which visiting oil men, who represent the Pennsylvania industry in all sections of the country, heard addresses by prominent executives and technologists, covering various phases of this particular branch of the industry.

Policies of the association for the coming year were outlined by Thomas H. Thompson, Jr., Bradford, president of the organization, and David B. McCalmont, Jr., Washington, D. C., representing the association's legal department. Thompson predicted that the present favorable conditions for the Pennsylvania industry would continue if producers and refiners watch inventories closely and do not mistake the present levels for the yearly average.

McCalmont traced the activities of the legal staff during the past year, explaining how its efforts and those of the inspection staff in the field had resulted in maintaining the integrity of the association's insignia and the name "Pennsylvania." McCalmont declared that the association had been unusually successful in protecting its emblem by legal means but that the efforts of the field staff, so far as number of cases is concerned, had resulted in correcting far more cases involving pirating the emblem and unethical practices.

Markham Speaker

General Baird H. Markham, director of the American Petroleum Industries Committee, offered what he termed a plan and a program for the industry in his address on taxes. General Markham made a strong plea for sound legislation and taxation which would be fair to the industry and not burden it with a load which hampers development, thereby depriving the consumer of savings which the industry might effect.

Research phases of the association's activities were discussed by Doctors Frank C. Whitmore and Merrell R. Fenske of the Pennsylvania State College staff, and John T. McCoy, of Tide Water Oil Company.

Two speakers, Charles L. Suhr, president of the National Petroleum Association, and H. H. Kynett, of Philadelphia, discussed marketing phases of the Pennsylvania business, the former telling of the refiners relationship with the jobber and the latter outlining an effective merchandising program.

Coy C. Hogg, president of National Petroleum Company, and a prominent producer of the region, explained the work in production research being undertaken at the college. Hogg is chairman of an association committee which consults with the college staff in matters pertaining to production research.

Adopt Resolutions

Resolutions advocating the repeal of the federal taxes on lubricating oil and gasoline were adopted as well as one protesting the levying of a tax on fuel oil in the Commonwealth of Pennsylvania.

Officers will be chosen at the next meeting of the directors, scheduled for the first week in July.

Many Subjects

ASME HEARS WIDE RANGE OF TOPICS DISCUSSED

DALLAS.

WIDE range of topics pertaining to the production and transportation of oil and gas were covered at the technical sessions of the Petroleum Section of the American Society of Mechanical Engineers semi-annual meeting held here June 17-20. The annual meeting of the society will be held in New York from November 30 to December 4.

Recognizing the diversified interest of members attending the Dallas meeting the program committee arranged for simultaneous sessions in the auditoriums. Papers delivered by the petroleum group were generally applicable to practices and problems encountered by the industry in the southwest.

Drastic proration restrictions and forced economies borne by oil producers in recent years have combined in creating a popular demand for small high-speed gas engines for pumping oil wells, according to J. M. Cooper, mechanical engineer for Gulf Oil Corporation, Houston. His paper was based upon a study of the advantages, disadvantages, and both economy and continuity of service of this type of engine in actual field use.

H. W. Fletcher, engineer for Hughes Tool Company, Houston, gave a talk on the use of plunger lift for pumping deep wells. A summary of new methods in oil field production was given by Stanley Gill, consulting engineer, Houston. I. F. Bingham, University of Oklahoma, Norman, Okla., discussed improved methods of attaining effective cement jobs on wells that produce oil at high temperatures. Review of outstanding improvements made within the past few years and the indicated trend in modern steam drilling equipment was discussed in a paper prepared by V. Weaver Smith, vice president of the Broderick Company, Muncie, Indiana. John P. Klep, engineer for Reed Roller Bit Company, Oklahoma City, gave a talk on wireline coring in hard formations. Economic operating cost analysis of several totally electrified pipe lines was the subject of a paper prepared by Winfred H. Stueve, Oklahoma Gas and Electric Company, Oklahoma City. R. D. Robey, Jr., vice president of Olson Drilling Company, Tulsa, gave a talk on the merits of semi-Diesels mechanically operated rotary rigs. D. M. McCargar and O. A. Haas, Allis-Chalmers Manufacturing Company, Tulsa, collaborated in the preparation of a paper on the design of Diesel-electric oil well drilling units.

Rodessa-Talco Oils

PRESENT REFINING PROBLEMS THAT REQUIRE MODERN PLANTS

By GEORGE REID, Staff Writer

A STUDY of the crude oil produced in both the Rodessa and Talco fields, latest major discovered areas, indicates that large modern cracking plants are necessary to obtain any degree of efficiency that will permit profitable refining operations. From this may be drawn the conclusion that neither is likely to become the site of numerous skimming plants, such as East Texas. This is an encouraging development from a market stability standpoint.

Rodessa Octane Low

Crude from the Rodessa field of Northwestern Louisiana and Northeastern Texas going into refineries at the rate of 50,000 to 60,000 barrels daily at present is presenting something of a problem in many instances. The chief problem is that of octane rating. The crude yields, according to Bureau of Mines analysis, 32 percent of gasoline and naphtha and 20 percent kerosene distillate, with a fair yield of lubricating oil distillate, gas oil and bottoms. It is classified as a paraffin-base crude, with sulfur percentage of 0.18, pour point of 25° F., dark green color, and A. P. I. gravity of around 43 degrees. Plant operations, however, secure a gasoline yield of around 30 percent of 357/400 end point and with an octane rating of 42-44.

The low-octane rating of this motor fuel is not conducive to profitable skimming plant operation, nor for cracking and reforming operation with any but the best of modern facilities. Skimming plants now processing this crude are apparently cutting deep into the crude for maximum yield of a motor fuel now generally classed or termed as "Rodessa no-octane." The possibilities of making more profit in skimming through production of special naphthas from this crude are not so good. Chiefly for the reason that Michigan operators are specializing in this field and have freight rate advantages, not much has been attempted by Rodessa operators in this market.

The refineries not equipped with modern cracking facilities or reforming units, or both, are not over enthusiastic about the possibility of processing the crude. Cracking units installed 10 to 12 years ago were not designed for operation at the pressures and temperatures necessary to secure maximum yield of high-octane motor fuel from this type of crude. Yet to process Rodessa distillates and bottoms successfully it is apparently true that both cracking and reforming may be necessary.

These conditions point to the installation of more cracking and reforming or combination processes. Already two refineries in North Louisiana are erecting cracking units for processing Rodessa crude. One plant will take out the lubricating oil fraction for further processing. It is reported that still ther refineries at Shreveport and Baton Rouge will soon start programs of construction involving installation of modern cracking or combination skimming-cracking-reforming processes. Some attribute such construction solely to the necessity of preparing for the treatment of Rodessa oil, but it must be remembered that refineries in Louisiana and Arkansas have been doing but little modernization work, especially in cracking, during the past several years. Many of the cracking units in the area are hoary with age, as cracking unit age goes. Possibly the presence of such a crude and the necessity for processing it has accelerated decision to proceed with modernization programs, and to that end refinery management may deem Rodessa a blessing. Much of the work now proposed or under way in this area would no doubt have been undertaken earlier had it not been for the proposed processing tax threat of a year or so ago.

There is little information available as to just how refractory the Rodessa distillates, topped crude, or heavy naphthas become when subjected to cracking conditions. It is reported, however, that it is refractory and that older equipment can not handle it efficiently or safely. Further, some commentators state that the lead susceptibility of the gasoline is not good. Still further evidence of the lack of quality of the straight-run motor fuel now being produced by skimming plants is the fact that this third grade, "Rodessa no-octane," is selling at about a half-cent lower than East Texas third grade.

It appears then, that Rodessa should not become a hot bed of small skimming plants and that larger refineries will require the best of modern facilities to process this crude profitably.

Talco Is Off-Grade

Another Texas field is in the making which will apparently produce a crude petroleum not too well suited to the desires and needs of refineries enjoying of recent years crude oils that are sweet and yield relatively high percentages of easily produced motor fuel. Estimates on the probable oil recovery from the Paluxy sand zone underlying the Talco faulted structure on the north rim of the East Texas Woodbine belt and near Mount Pleasant, Texas, range beyond the 100,000,000 mark. Appraisals placed on this area allow for about 7000 productive acres, extending in a general east-west direction. Apparently the field is around 4½ miles long but with subsurface data supporting forecasts of the field being eventually 7 miles in length with a width varying from a "shoestring" to 1½ miles. Early predictions on average recovery per acre range upwards from 15,000 barrels.

The rapidity of development of this area may be retarded because of limitations of markets and prices for the comparatively low gravity and "off-brand" grade of the crude obtained from the Paluxy zone. Production from this zone at Talco is reported as an intermediate base crude with an A. P. I. gravity of 24.5 degrees. The crude is not well suited to skimming plant operations as the gasoline recovery ranges from 13.5 to 15 percent, with 2.63 percent sulfur. Further analysis in detail is not available at this writing but the foregoing information is sufficient to indicate that processing Talco crude is a cracking-unit job. Unlike East Texas or the presently developing Rodessa field, but little gas is found with the oil so far. Thus a construction program of natural gasoline plants in this area is not indicated.

Some of this crude has been cracked at one of the East Texas cracking plants, some of it is being sold in the field as fuel for drilling rigs, and some has been shipped out of the area in tank cars, to the Gulf Coast. Price has ranged around 60 cents per barrel, and but few refineries have evidenced interest in processing it. If, however, the area is to produce in the quantities indicated, refining processing methods will of necessity be devised to the end that the oil may be profitably handled. It appears as another job for the cracking process.

TO BUILD PLANTS
Phillips will erect four polymerization units

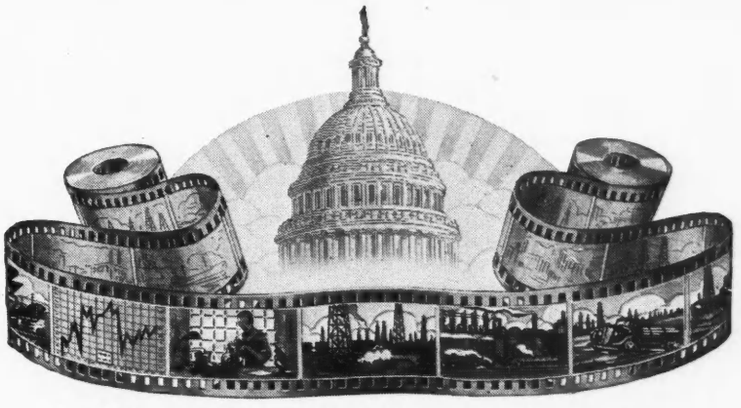
BARTLESVILLE.

THE largest expansion yet to be announced in the field of gas polymerization is represented in the release by Phillips Petroleum Company of the details of four new units to be located at Borger, Texas, and Kansas City, bringing its total polymerized gasoline capacity up to 4000 barrels per day. Already a leader in the use of polymerization, Phillips Petroleum Company through its augmented plant capacity will be placed further ahead in this field. In a broader sense, the expansion may represent a milestone in the progress toward more profitable utilization of natural gas; may indicate the increased degree to which high anti-knock motor fuels will be derived from this source in the future.

The new program now under way includes the construction of four new units having an aggregate capacity of 3500 barrels of polymerized gasoline per day. Three of these will be at Borger, Texas, having capacities of 1000 barrels per day each, bringing the total polymerized gasoline capacity there up to 4000 barrels daily. One of the three has been completed and is now in operation. The fourth unit, which will be at Kansas City, is almost completed at present, and will have a polymerized gasoline capacity of 500 barrels per day. Gasoline produced will have a blending value of 85 octane number and above.

While the Kansas City installation will serve mainly for the polymerization of refinery gases, the new units at Borger will be used almost exclusively for the polymerization of natural gas.

The Changing Panorama



THE OIL WEEKLY'S COMPOSITE VIEW OF INDUSTRY

Edited by L. J. LOGAN, Associate Editor

THE oil industry's outlook grew appreciably brighter late last week, when it became virtually assured that the nation's crude production would be closely balanced with market requirements under the July allowables of the leading producing states.

Effective restriction of the national crude output in July appeared almost a certainty after the Texas Railroad Commission late June 19 issued a new proration order calling for a reduction of over 50,000 barrels in the Texas daily allowable.

Texas Above Quota in June

Texas had been producing substantially in excess of the Bureau of Mines recommendation during June, while several other important Mid-Continent states were adhering closely to the federal allocations. Consequently, Texas had been censured, and the Texas Railroad Commission was in the spotlight when it held its statewide proration hearing late last week, in preparation for fixing July allowables.

Pressure on Railroad Commission

Unofficially, the warning had come from Oklahoma, Kansas, and New Mexico that Texas must stick close to the Bureau of Mines recommendation in July, if it expected those other states to adhere closely to their federal quotas.

It appeared, therefore, that the Texas commission held within its hands the power to determine whether or not the national production in July would conform closely with the national demand.

Under the circumstances, the Texas commission appeared to have no choice but to adopt new allowables in line with the Bureau of Mines estimate of demand.

Strict Control in Other States Likely

Since Texas actually made the substantial reduction that was expected of it, immediately following the statewide hearing, it appeared quite likely that Oklahoma, Kansas, and New Mexico also would adhere closely to the Bureau of Mines recommendations in July. Thus there was a strong possibility that the national output of crude in July would be about in balance with consumption.

Rodessa Threat Diminishes Further

The Rodessa situation also seems better stabilized, as the United Gas System last week consummated purchase of Eastern Texas Pipe Line Company's crude oil line that had been conveying output of Pelican Oil & Gasoline Company's wells. Those wells are the ones that formerly were producing the special high allowables. They now are connected to the pipe line of Shoreline Oil Company, which is reported trying to buy the wells.

Markets Show Improvement

Mid-Continent gasoline tank car prices were steadier last week. They grew more firm in the early part of the week under influence of increasing consumption, and the above discussed favorable developments later in the week promoted further improvement. However, prices continued mostly unchanged. In some cases they were marked up, but buyers hesitated to pay the advanced prices.

If the promise of strict crude control in July is fulfilled, it seems quite possible that the gasoline prices will make some gains and recover part or all of the ground lost in April and May. Gasoline inventories unquestionably are sufficiently excessive to act as a brake on the markets. But the excess appears to be exerting a diminishing influence as consumption rises to higher levels. The excess possibly will not be a serious burden until demand begins dropping off next fall, especially if there is fulfillment of the promised strict control of crude output during the summer.

More Interest in Oil Shares

Although oil company shares improved considerably late last week, the gains apparently were accounted for partially by the rising trend of the market in general. However, the investors and traders also apparently were giving the oil industry credit for an improved outlook.

Oil company stocks had been in disfavor for sev-

eral weeks. But as long as a week or 10 days ago it was being talked in Wall Street that pessimism toward the oils had been overdone. It was contended that the industry's basic position is sufficiently strong to make any current difficulties secondary in importance.

The oil shares lost considerable ground in the April decline, and although other securities also went down at that time, in a general slump, the oils subsequently did not show as much recovery as some other stocks. Partially explaining that situation was the fact that oils were pushed down in April and May not only by the general market break, but also by difficulties that arose at the same time within the industry. It was in that period that a general price break seemed a definite possibility, due to heavy gasoline inventories, overproduction of crude generally, and the disturbance over Rodessa proration.

Congress Agrees on New Taxes

Increases of oil company and other security prices late last week were believed by some to be due in part to the new tax program finally agreed on in Congress. Aimed at forcing corporations to pay their earnings out to stockholders in dividends, the new program was regarded as possibly making stocks more attractive to some investors. On the other hand, it was readily conceded that this taxing policy ultimately might prove not only a deterrent to "bigness" among corporations but also a serious shackle preventing building up or maintenance of adequate financial reserves.

The matter of financial reserves naturally is one of great importance to oil companies, because of the hazardous nature of the business. In the producing branch of the business, particularly, there are possibilities of erratic earnings, with some years fat and more years lean.

As this is being written, there is not available for inclusion herewith an analysis of the probable effect of the new taxes on the oil companies.

Like the taxes heretofore levied on the incomes of corporations, the new taxes embody a normal graduated tax on earnings, but they also introduce a new idea: an added tax on earnings not paid out in dividends. Heretofore, corporations paid from 12½ to 15 percent tax on net income, depending on the amount of the income. The new taxes provide a similar normal tax, but graduated as follows: 8 percent tax on the first $2000 of income, 11 percent on the next $13,000, 13 percent on the next $25,000, and 15 percent on the rest of income over $40,000.

While present taxes do not embody levies on undivided profits, the new taxes institute such taxes, as follows: 7 percent tax on the first 10 percent of earned income that is retained by the company, 12 percent on the next 10 percent retained, 17 percent on the next 20 percent, 22 percent on the next 20 percent, and 27 percent on the remainder of retained income above 60 percent.

Marketing Code Pushed Further

A meeting is scheduled at Chicago June 23 for further pushing of the proposed national oil marketing code. The committee representing Middle Western refiners and marketers will meet with the committee of three that has been endeavoring to gain national acceptance of the code. This marketing code originally was designed for application in the Middle West, but later it was decided to make the code national in scope, if possible. The committee of three included men to contact, respectively, the refiners, retailers, and jobbers. If national acceptance within the industry is gained, the proposal will be carried to the Federal Trade Commission for approval. The Chicago meeting is intended to move the marketing code nearer to actual inauguration.

No Oil Shortage Talk Lately

Recent months have been remarkably devoid of any predictions of an early shortage of oil, although such predictions are in order every few months. Talk of a possible oil shortage would seem a bit fantastic at present, however, with great difficulty being experienced in holding crude output below 3,000,000 barrels a day. Although the production lately has established new all time records, flush fields meanwhile were threatening to push the output into still higher ground.

Consumption of petroleum has been greater this year than ever before in all history, with unprecedented demand prevailing for gasoline and also for some other products of the industry. But while petroleum demand has risen to these record proportions, petroleum supply also has advanced to unprecedented levels. In fact, the supply has kept up with the rising demand more easily than might have been desirable, from the standpoint of the oil industry's markets and prices. The supply has been tending to outstrip the demand.

The industry has been demonstrating for more than a decade that the time has not yet come when it cannot adequately find oil that is needed. In fact, the more recent years have brought so much new oil as to indicate the industry now needs to exert itself less than ever before to find the oil that is required. Advanced prospecting methods have greatly facilitated discovery of new fields, and scientific producing methods have increased recovery of oil that is found.

The oil industry's prophets envision a further steady increase in petroleum consumption for years to come. They predict that automobile and truck registrations 25 years from now will be nearly 50 percent greater than at present, basing the forecast partially on the projected increase in population. Tractors also are expected to come into much wider use, and further large gains in domestic oil burner installations are anticipated.

These increases in demand will impose a heavy responsibility on the petroleum industry as regards finding new reserves. But such responsibility also has been imposed continually heretofore, and the industry constantly has done all that was asked of it.

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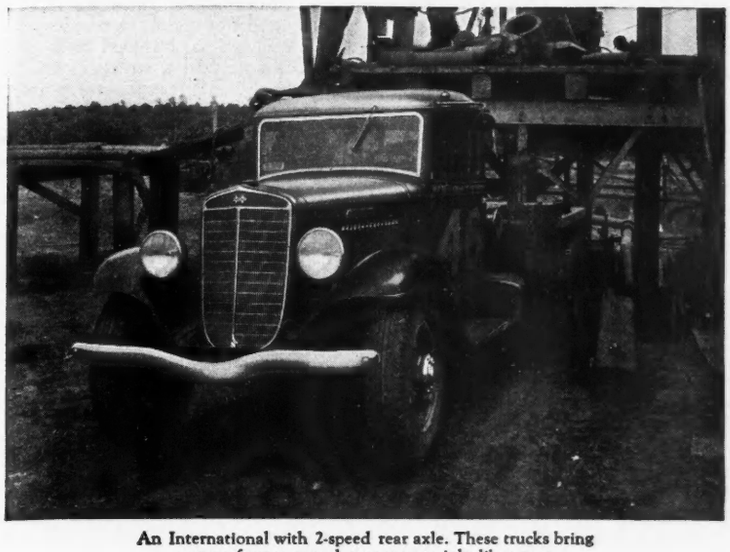

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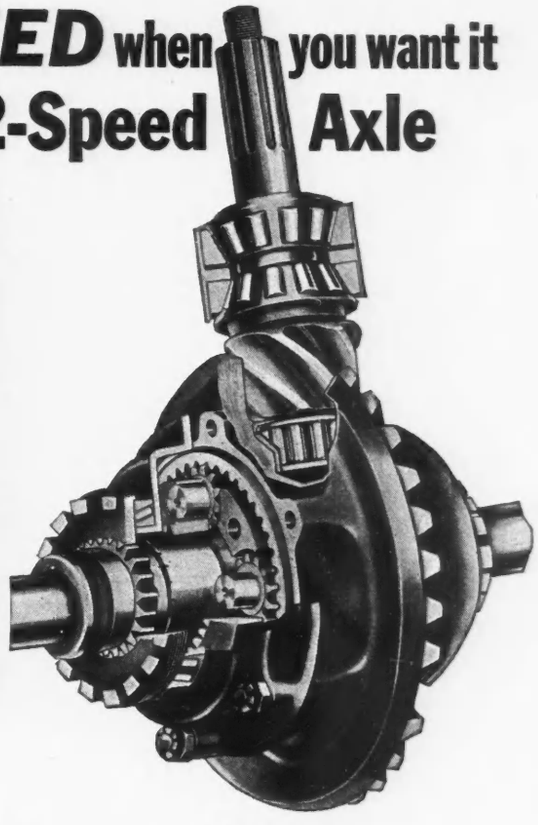

● The 2-speed rear axle trucks available in the International line now make it possible for truck users to obtain both high-speed and low-speed performance in one unit. A simple movement of the shifting lever changes the axle ratios instantly and silently without stopping the truck. The low-gear ratio provides *power* for hauling heavy loads through tough going and up steep hills, while the high-gear ratio allows *high speeds* on level roads or with light loads.

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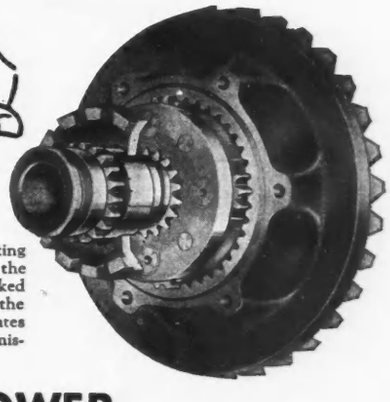


When the driver places the shifting lever in the forward position, the four planetary gears are in the locked position and turn as part of the differential. The truck then operates as a high-speed unit in all transmission gears.

BACK for POWER

When the driver places the shifting lever in the back position, the four planetary gears are in the unlocked position, which allows them to rotate around the locking gear, thereby making a silent reduction of axle speed. The truck then operates in all transmission gears as a powerful low-speed unit.

INTERNATIONAL TRUCKS

MEN IN THE INDUSTRY'S NEWS

ALF LANDON IS THE FIRST OIL MAN TO EVER BE NOMINATED FOR THE PRESIDENCY OF THE UNITED STATES

LEAVITT CORNING, JR., for the past four years in the geological and magnetometer department of Plymouth Oil Company and very active in the company's field and exploratory work in San Patricio County, Texas, has resigned from that department to enter the independent field as a consulting geologist and magnetometer operator. Corning graduated from Princeton in 1928. He worked with Gulf Oil Corporation out of the Pittsburgh office for the next four years until 1932 when he came to Texas to be associated with Plymouth Oil Company. He is well known in the Gulf Coast area and has done considerable work for which he has received favorable comment.

RALPH G. HARDER, assistant to the manager of public relations, Shell Petroleum Corporation, St. Louis, addressed the Tulsa Chamber of Commerce June 12 on the subject of taxes.

G. A. STEELE, Mexico City, president of Pierce Oil Company of Mexico, recently arrived in the United States by airplane for a vacation.

A. C. FERNANDEZ, assistant to the general manager of Cia. de Gas y Combustible "Imperio" S. A., at Tampico, Mexico, is recuperating from an appendicitis operation.

SIR HENRI DETERDING, director general of the Royal Dutch Shell group, was married at The Hague June 2, to Fraulein Charlotte Mina Knaack.

DORSEY HAGER and **GRENVILLE HOWARD** of the firm Hager and Howard have opened offices at 601 Union Trust Building, Winnipeg, Canada. They specialize in the examination, appraisal and exploration of petroleum and natural gas prospects and natural gas engineering. Hager will continue to make his headquarters at Lansing, Michigan, and the Canadian office will be in charge of Howard.

COLONEL R. C. KULDELL, president Hughes Tool Company, has purchased the historic old Chenango plantation in Brazoria County, 33 miles from Houston. Kuldell plans to use the plantation as a commercial stock farm. The plantation is older than the State of Texas, being founded in 1832.

CARL V. CHLAET, independent operator of Tampico, Mexico, has moved to Dallas, where he and his family will make their future home.

R. L. (LOYD) WHEELOCK, president of the Texas Petroleum Council, and an independent operator, threw his annual barbecue party at his farm seven miles from Corsicana on June 13. More than 600 oil men from all parts of Texas, Oklahoma, Arkansas and Louisiana gathered along with a few from as far away as New York and California.

HE HAS MADE HIS LIVING AS AN INDEPENDENT PRODUCER OF OIL IN KANSAS

ALF LANDON

ALFRED MOSSMAN LANDON were the names by which he was presented to the delegates of the Republican convention at Cleveland, where he became unanimous choice as candidate of that party for the presidency of the United States. But in the oil country he is Alf Landon, independent oil producer, who became governor of Kansas in 1932, a year that saw his party place few men in such spots. He came through two years later when the going was still tougher for those of Republican leanings.

To the oil industry he offers the distinction of being its first man to draw the honor of a nominee for president of the United States.

While radios were ringing with words of praise for his ability as a governor, his neighbors back in Independence, Kansas, were thinking of him as a citizen and a business man. To them he is a glowing example of a man who reversed the usual procedure. He is a small town boy who stayed at home and made good. With school days over at the University of Kansas he came back home and got into the oil business.

He has been in it since with sufficient success to be classed as comfortably fixed but not wealthy. He drilled his share of dry holes and got his share of producers. To him oil was a business and not a game. Once he had a string of 25 consecutive failures, if newspaper reports are correct. Then a producing well in Greenwood County broke the spell of drilling in the wrong place.

As an oil producer he was not a headline maker, although writers for the oil papers now recall suggestions that came from executives of the larger companies. Frequently when these men were urged to make statements or grant interviews, they would ask, "why not talk with Alf Landon?" The inference was that Landon knew something about the oil business. Evidently he did, although he was seldom sought for a statement. Alf Landon was not spectacular enough.

Of late political circles have made much of his record of keeping the budget balanced for Kansas. His neighbors and associates have known that about him for years. That was the way he operated his own business. He met his pay rolls regularly, paid his bills and kept on after oil. Difficulties of accomplishment did not lessen the necessity of accomplishment.

Alf Landon likes a good horse and the working end of a fishing pole. Neither business in flush times nor office holding in distress times has brought sufficient strain to keep him from indulging in these sports. He likes to go back to Lawrence for a reunion of his class at K. U.

After his nomination he went home to Independence and some merchant gave him a new hat and suggested that he wore his hats so long that he should start a new one as a candidate for president. "You just wanted to see if my old size would still fit," was his playful rejoiner. The hat fit.

JOHN A. BROWN, president of Socony Vacuum Oil Company, Incorporated, was a passenger on the first eastbound trip of the "Queen Mary." He plans on spending two months in Europe on a pleasure and business trip.

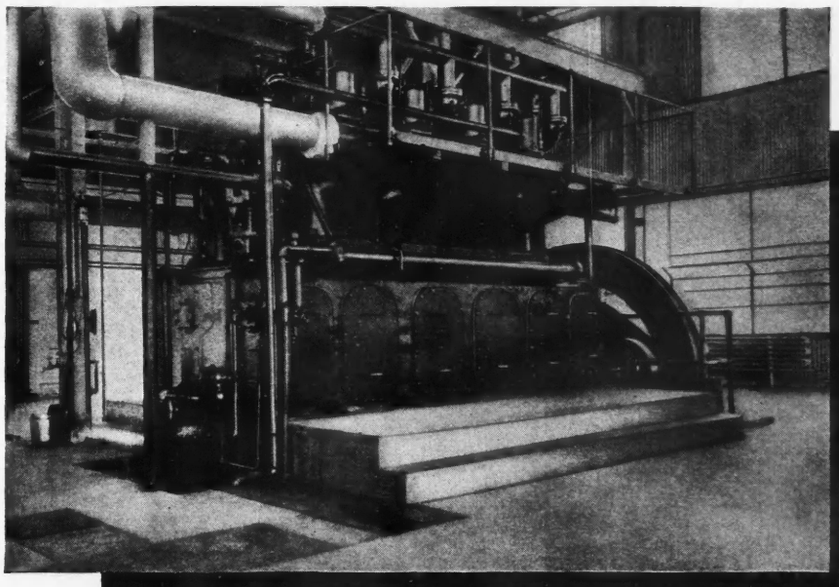
GILBERT TALLEY, formerly with the Iowa Geological Survey, has joined the Oklahoma City district geological staff of Sinclair Prairie Oil Company.

GEORGE E. BURTON, geologist for Sun Oil Company, plans to soon move his family from Dallas to the company's new camp at Odessa, Texas.

R. VANDERWOUDE, president of Shell Union, New York, and Dr. R. R. Morse, chief geologist for Shell Petroleum Corporation, Houston, spent several days in Louisiana on an inspection trip prior to arriving in Houston last week.

ALLEN BRYERE, formerly with The Texas Company, Fort Worth, has been transferred to Houston and is working in the geophysical department for the same company.

SEQUOYAH BROWN, director of the Tulsa Junior Chamber of Commerce and business manager of University of Tulsa since 1933, has accepted a position in the



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personnel and industrial relations department of Carter Oil Company under Ivan Willis, head of the department. Brown, a graduate of University of Tulsa in 1929, later was admitted to the bar after graduating from Tulsa Law School.

LEO W. WARD, engineer at the Council Hill Station of Oklahoma Pipe Line Company; J. W. Freeman, superintendent of the material and traffic department, R. W. Kirkpatrick, superintendent of the southern division, and J. T. Robinson of the Carter Oil Company, each received 20-year lapel buttons as a symbol of their continuous service with these firms.

C. A. McDANIEL, head of materials department, and L. A. Beecherl, production department, have terminated 17 years of service with Atlantic Oil Producing Company to become associated with Wray Richards in the operation of the W. & R. Drilling Company, with headquarters in the Medical-Dental building, Dallas. Robert A. Hamilton, former assistant head of the materials department, has succeeded McDaniel, and Hal Erwin has relieved Beecherl.

SOUTH LOUISIANA GEOLOGISTS ORGANIZE NEW SOCIETY

GEOLOGISTS of Lake Charles, Louisiana, and vicinity, met at a luncheon Friday, June 12, to form the South Louisiana Geological Society. Plans were made for bi-monthly meetings at which papers relative to South Louisiana oil development will be read and discussed.

The following officers were elected: R. B. Grigsby, Stanolind Oil & Gas Company, president; Dr. C. Ivan Alexander, Magnolia Petroleum Corporation, vice president; James S. Kirkendall, Amerada Petroleum Corporation, secretary; and C. L. Love, Shell Petroleum Corporation, treasurer.

R. B. GRIGSBY

DIED:

J. F. (JACK) MURPHY, 70, oil operator, well known in the Mid-Continent area, died early June 16 in a Sapulpa, Oklahoma, hospital from injuries received in an automobile crash a few hours earlier. Murphy had lived in Sapulpa for many years.

MR. AND MRS. CHARLES LAWHON were drowned in the San Jacinto River near Humble, Texas, on June 14. Lawhon was employed as an engineer for Sun Oil Company.

WILLIAM G. HELTZEL, general superintendent for Stanolind Pipe Line Company, Tulsa, headed a group of company engineers that inspected a part of the company's line extending from Teapot, Wyoming, to Freeman, Missouri. The company will recondition and put the line in service for running stored crude from its Clayton tank farm in Converse County, Wyoming.

CHARLES E. BEYER, vice president in charge of production for Plymouth Oil Company, has moved from San Antonio to Sinton where the company has consolidated the various units of its production department. Others moving are Arthur Flores, secretary, and R. E. Johnson, purchasing agent.

DAN J. MORAN, president of Continental Oil Company, Ponca City, Oklahoma, has purchased the Kerr County, Texas ranch of O. R. Seagraves, Houston oil man. It is considered one of the finest ranch homes in the state. The three story house is entirely modern and fronts on a large artificial lake and also overlooks the Guadalupe River. It is located about 25 miles west of Kerrville.

J. H. McLAREN, scout and land man for Philips Petroleum Company, has been placed in charge of that company's office which has been opened in Corpus Christi. C. G. Lalicker, will have charge of the geological and paleontoligical department.

DJEVAD EYOUB, petroleum engineer who has been directing exploratory drilling for the Turkish government, will henceforth be known as Cevat E. Tasman, in compliance with a new Turkish law requiring everybody in that country to adopt Turkish family names.

PROFESSOR H. V. BECK, School of Mechanical Engineering at the University of Oklahoma for some years past, is now associated with Metric Metal Works, Erie, Pennsylvania, as experimental engineer.

J. DOUGLAS CASEY, an employe of the engineering department of Magnolia Petroleum Company, Dallas, was seriously injured June 15, in an auto mishap while on his way to work.

G. MOSES KNEBEL, assistant manager of Standard Oil Company of Venezuela with headquarters at Caripito, was the guest speaker at the semi-monthly luncheon of the San Angelo Conglomerates held June 15, at San Angelo, Texas. Accompanied by his wife and two children, Knebel is spending a portion of his vacation in Texas, having spent the past six years in Venezuela.

E. H. COLLINS of Philadelphia, Pa., has been elected vice president in charge of sales for Standard Oil Company of Pennsylvania, a Standard Oil Company of New Jersey subsidiary. Collins has been with Standard Oil Company of New Jersey since 1919.

FRED E. COOPER of Tulsa is on an extended trip through the North and East visiting at Milwaukee and also in New York in connection with export business of the company.

FINLEY DOYLE, geologist for Sun Oil Company, returned to headquarters at Dallas, after spending several months on detached duty at Jal, N.M., where the company drilled several semi-wildcats.

O. D. CRITES, manager of crude oil department for Shell Petroleum Corporation, Houston, was in Dallas during the past week on business.

W. H. TEBBS has been made superintendent of production for Irion Mountain Oil Company with headquarters in Fort Worth.

ROY B. JONES IS HONORED BY NORTH TEXAS OIL MEN

ROY B. JONES, founder and president of The Panhandle Refining Company, Wichita Falls, Texas, was honored at a banquet given by North Texas producers and refiners on June 20. The occasion was the company's twentieth birthday. A large and representative group of oil men from North Texas and adjacent territories were present.

ROY B. JONES

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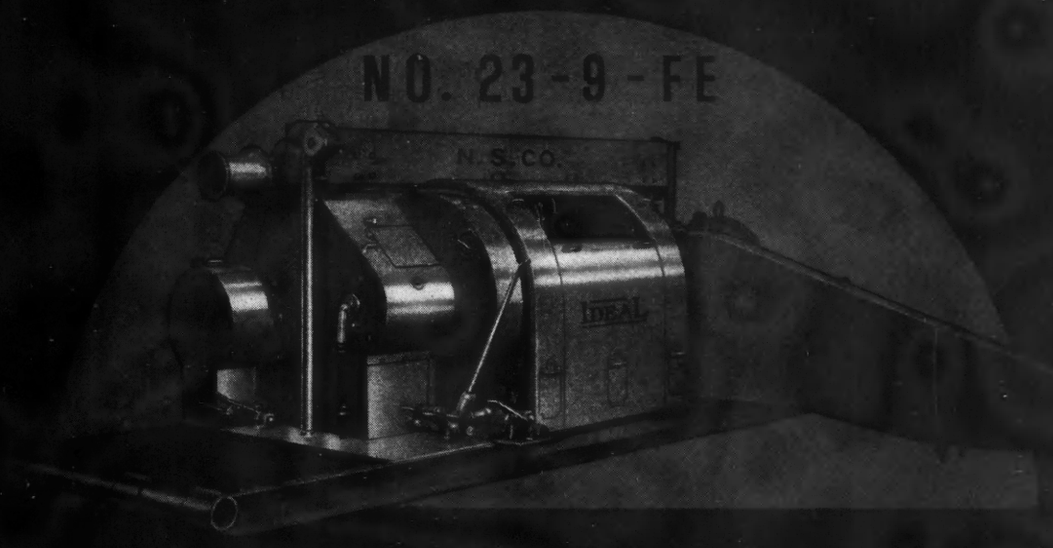

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SEISMOGRAPH EXPLOSIVES

Pressure Maintenance

SOUTH BURBANK FORMATION REACTS FAVORABLY TO STEADY INJECTION

By BRAD MILLS, Associate Editor

STEADY injection of gas into the producing formation has affected favorably the performance of flowing wells in the South Burbank field, Osage County, Oklahoma, where a pressure maintenance program was inaugurated last year. The return of a large volume of gas to the producing zone has resulted in a more uniform formation pressure, a slower pressure decline, and the assurance of a much longer flowing life than could be expected without some form of pressure maintenance. No attempt has been made, however, to inject enough gas to maintain the full formation pressure from month to month, since the use of straight gas to fill all the space formerly occupied by gas and oil might sharply affect the gas/oil ratio during the late development stages. The gas returned to the producing formation is enough to insure the recovery by flow of a much larger percentage of the oil in place than could be recovered by conventional methods.

The pressure maintenance plan is one of the most unusual ever formulated in an American field, all inside acreage being included. Seventeen operators holding the principal leases held a series of meetings at Tulsa in the spring of 1935 and acceptable terms were agreed upon. A total of 2700 acres of land, with one to 10 wells on each section, were included in the unit operating plan. At these meetings operators were able to agree on several provisions that have prevented the inauguration of similar programs in other fields. One general requirement was that the injection wells should be located to benefit the greatest number of output wells, and another specified that the input wells should be located in an area where the sand is of a porous nature and of proper thickness to take the gas readily. Development in the field has not been uniform, but the position of various producing wells does not require an excessive number of input wells.

Geologically the South Burbank extension is similar to the old Burbank pool which was discovered about 10 years ago. Since the fall of 1933, when the discovery well was completed by Meade Oil Company in the south end of the field, about 120 wells have been drilled in all parts of the extension. A definite field boundary has not been established, but the east and west limits have been fairly well defined.

Rapid development of the old Burbank field was followed by a pressure decline that reduced the field to a pumping status far ahead of its time. Oil was wasted, gas was popped to the air in large volumes, and many wells dropped into the marginal classification before they had returned a profit to their owners. The rapid pressure decline increased production costs to a level that prevented profitable operation of a number of leases. Petroleum engineers estimate that the recovery of oil from the old Burbank field would have been from 25 to 45 percent greater had a pressure maintenance program been carried out.

The South Burbank field definitely is not affected by a sustained water drive. The chief producing energy is derived from the free gas and the dissolved gas in the oil, a condition that necessitates conservation of the principal production force. The formation condition is ideal for the injection of gas to bolster the bottom-hole pressure, which would decline rapidly if oil and gas were withdrawn and no gas returned to the producing zone.

The royalty in the field is owned by the Osage Indians. The operators participate in the costs and profits of the unitized plan in proportion to the percentage owned. Carter Oil Company, largest operator in the unit, was selected to carry out the full field program. This company already was familiar with formation conditions and had given considerable thought to a pressure maintenance plan that would help to offset the normal loss of flowing energy occasioned by the removal of oil and gas from the producing zone. In carrying out the program, the acreage is treated as if it were one lease, the chief objective being the recovery of the greatest percentage of oil in place. An analysis of pressure conditions in all parts of the field, porosity and thickness of the producing sand, location of the input wells, gas volume, and changes in the gas/oil ratio involve an effort that can be accomplished best under the direction of one company.

The original bottom-hole pressure ranged from 1050 to 1100 pounds. Depths of the wells vary from 2800 to 2900 feet, depending upon their location on structure and elevation. Six input wells have been drilled. Of the 90 producing wells, 82 are flowing and 8 are on the pump. The development program calls for 1 well to 18 acres, but this may be slightly modified to meet future conditions.

The response of the formation to steady gas injection has been checked, and the several advantages of such a program are apparent. It is indicated that the pressure maintenance plan will permit drilling of fewer wells, cause the wells to flow much longer, reduce the ultimate drilling investment, give a lower production cost per barrel, and reduce the administration cost.

About 1,500,000,000 cubic feet of gas has been

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injected since the program was launched less than a year ago. The bottom-hole pressure is building up in some parts of the field, declining slightly in others, and remaining almost constant in other sectors. The average pressure for the field is declining slowly, since the injected gas falls considerably short of filling the space occupied by the produced gas and oil. The field decline during the past five months has been about five pounds.

Production is obtained from the Bartlesville sand, a fairly consistent producing zone that usually contains a good grade of oil. This formation in the South Burbank field has a 10-foot gas zone on top, but it has been the custom for some time to cement casing below the stratum. Setting casing below the upper gas streak has done much to reduce the gas/oil ratio.

The gas/oil ratio averages around 1/1000. The gas being injected through the six input wells averages about 700 cubic feet for each barrel of oil produced, leaving a net loss of only 300 cubic feet per barrel of produced oil. The injection is filling back from day to day about 70 percent of the space occupied by the produced oil and gas. The total gas injected equals about 25 percent of the total produced gas.

Bottom-hole pressures and potentials recently were taken, and operators agreed to an allocation plan based on tubing potentials. The next allowables will be taken at three-month intervals and will be based on a bottom-hole pressure decline curve. The objective is to maintain a uniform field pressure by giving wells with high bottom-hole pressures greater allowables than the low pressure wells. Care in the use of input wells will gradually give the inside leases a fairly uniform formation pressure. Thickness and porosity of the sand in certain areas in the field will affect conditions, however, and it will be impossible to create an ideal producing zone from one that was not perfect and uniform in the beginning. Strategic location of input wells in areas that will give maximum benefit to producing wells, and in sectors where the sand is of a porous nature and of good thickness has given the injected gas a positive action.

The bulk of the residue gas for injection is purchased from Skelly Oil Company's natural gasoline plant that is located in the field, the amount now being taken from this source being from 8,000,000 to 9,000,000 cubic feet daily. About 1,000,000 cubic feet is being purchased from the Naval Reserve.

Skelly Oil Company delivers the gas at a pressure of 250 to 275 pounds. It is picked up by Carter Oil Company's compressor plant and stepped up to an average pressure of 860 pounds, which is the injection pressure. The compressor plant that has been handling the 8,000,000 to 10,000,000 cubic feet of gas daily consists of one 16x6¼x20 and four 16x5½x20 compressors. Two compressors of the larger size are being added to the plant.

There is nothing elaborate about the compressor plant or the high-pressure field distribution system. The gas is simply picked up at a pressure of about 250 pounds and stepped up to the required injection pressure. Four-inch field lines are used between the plant and input wells.

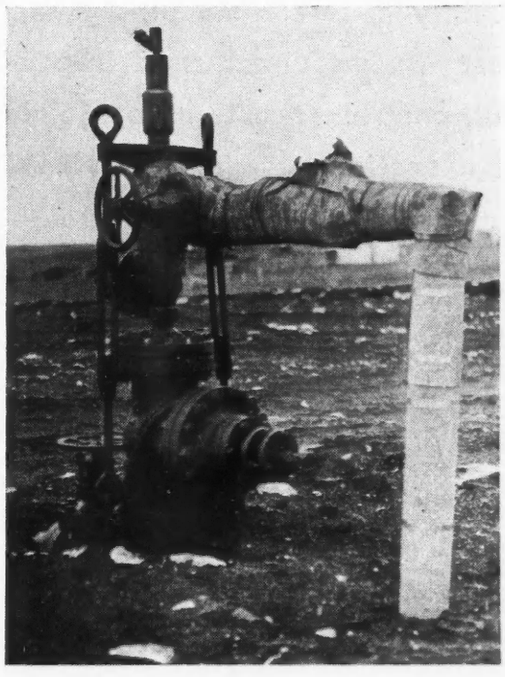
The producing wells have 2- and 2½-inch tubing, but the injection wells are not tubed. The gas is injected through the 7-inch casing, the input wells not differing otherwise from the producing wells. The surface equipment at the input wells is simple, consisting chiefly of a series of gate valves. The gas makes three 90-degree turns before it finally enters the well.

The surface injection pressure often is so near the bottom-hole pressure that the weight of the column of gas becomes an important factor. It has not been necessary to maintain a line pressure that is appreciably higher than the average bottom-hole pressure, and it has been very interesting to note that the weight of the column of gas in the well is enough to cause the formation to take the gas, when the surface pressure and the bottom-hole pressure are identical. This pressure program is one of the first to demonstrate the importance of the weight of gas in a column under pressure. Where only a limited volume of gas is to be given to the formation from the surface, the weight of the gas column alone may supply the required pressure excess above the surface pressure, although a higher surface pressure is desirable.

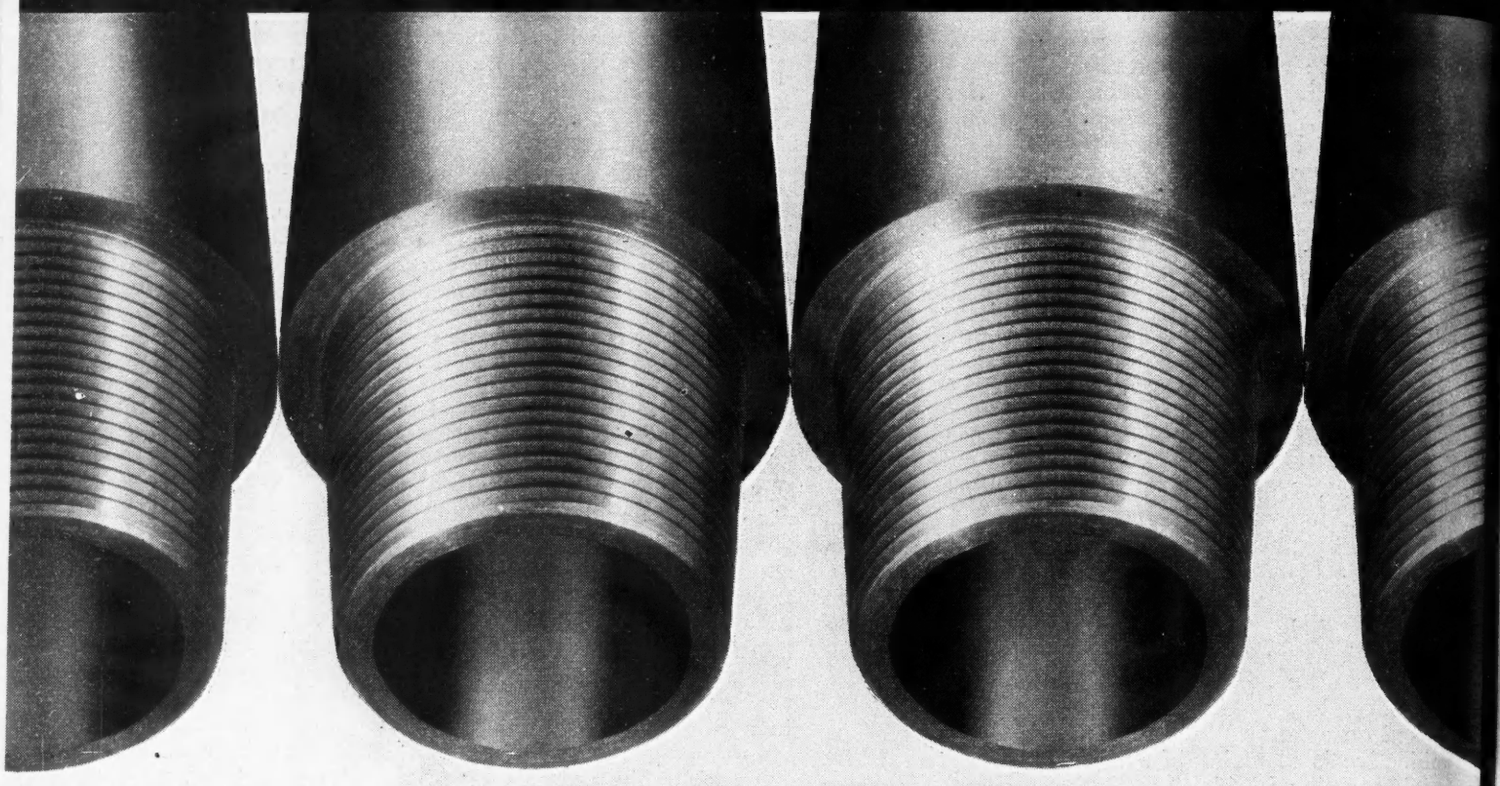
The companies participating in the pressure maintenance plan are Albec Oil Company, Bay Oil Corporation, Bridgeport Machine Company, Buffalo Oil Company, Carter Oil Company, Empire Oil & Refining Company, Enterprise Transit Company, Gulf Oil Corporation, Indian Territory Illuminating Oil Company, J. C. Mabee, Manahan Oil Company, Midco Oil Corporation, Norbla Oil Corporation, Phillips Petroleum Company, and Skelly Oil Company.

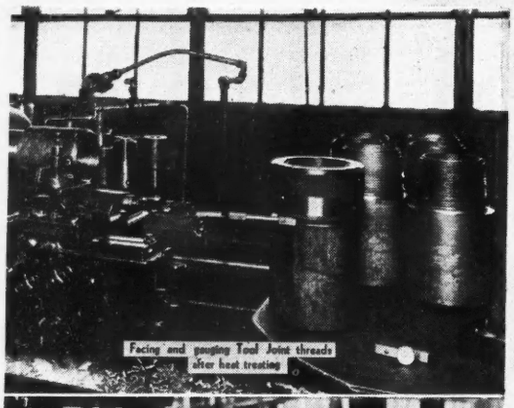
Daily production at South Burbank has been about 15,000 barrels daily. The field has produced about 7,500,000 barrels of oil since its discovery in the fall of 1933. Sand conditions are almost identical with those in the old Burbank field, where production to date totals more than 145,000,000 barrels. The slow decline in the bottom-hole pressure at South Burbank and maintenance of a fairly uniform pressure indicate a long flowing life for the field.

A gas injection well in the South Burbank field.

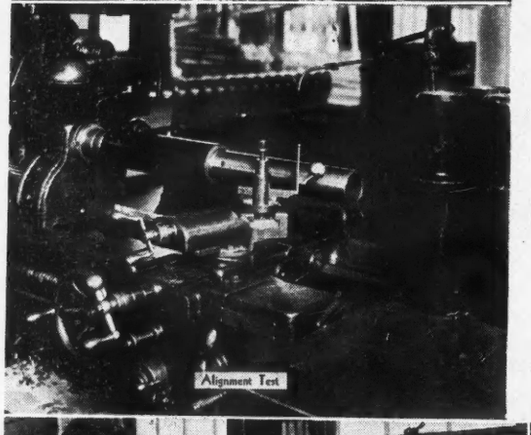


UNIFORMITY





Facing and gauging Tool Joint threads after heat treating



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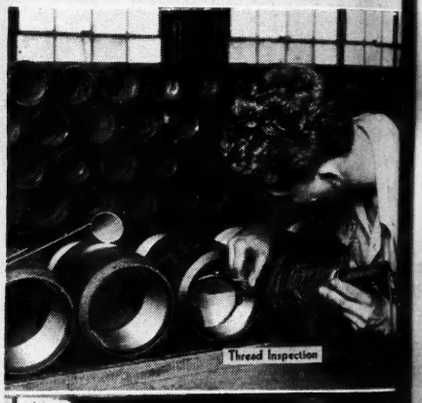
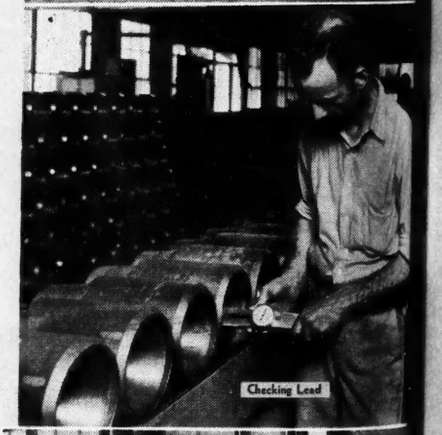
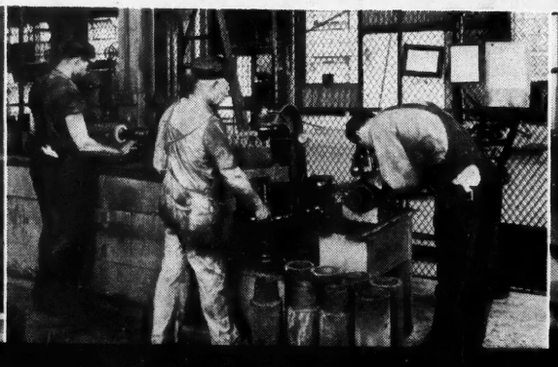
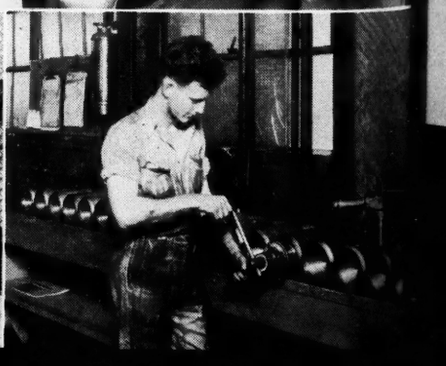


Thread Inspection



Checking Lead





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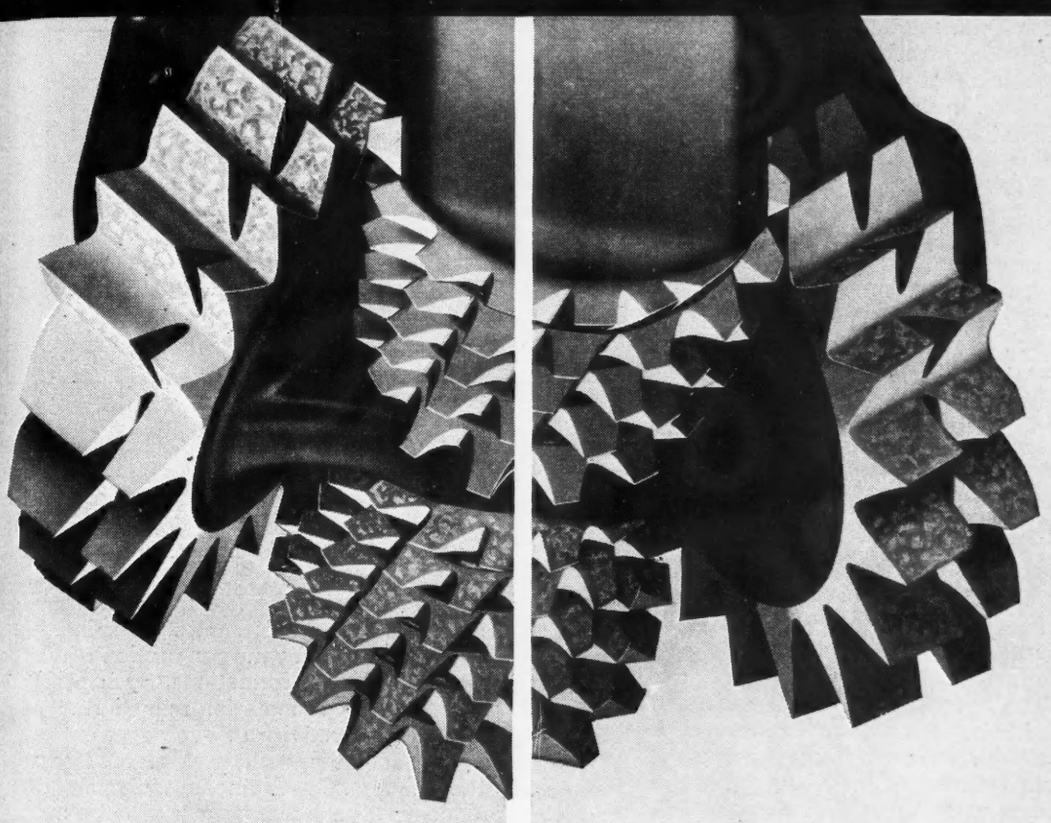

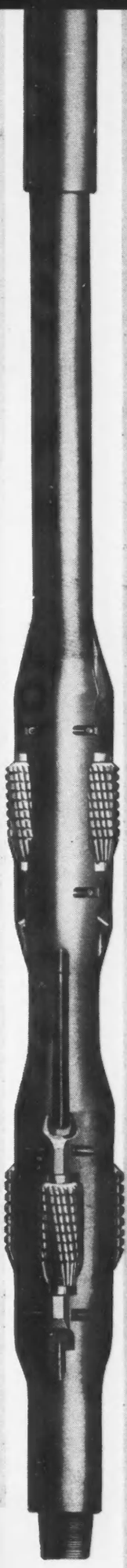

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Circulation Losses

By ROY SILENT, Chief Engineer
Petroleum Securities Company
Los Angeles, California

PROBLEMS arising from the loss of fluid from the holes of drilling oil wells are practically as old as the art of drilling itself. Such losses were troublesome during the era of cable tool work, in that they necessitated replacement of the drilling fluid, usually water mixed with the cuttings incidental to drilling. Sometimes such losses resulted in stuck tools, but it was not until the advent of rotary drilling as a general practice that fluid losses and the consequences caused thereby became serious enough to require special consideration.

We have only to consider the expense arising from the loss of circulation in rotary drilling due to stuck tools and twist offs, etc., as well as the cost of the mud fluid itself, to realize what a factor this phenomena represents in the industry. As an example, it may be pointed out that in certain areas in California the loss and contamination of the mud fluid are represented by mud bills of as much as $100,000 for a single well. Fortunately recent developments in mud control procedure have largely reduced these figures.

Two Classes of Losses

Loss of circulation may be divided into two classes: First, the loss into fissures, channels and so-called caverns formed in the formations; secondly, losses into the formations proper. The first phenomena is generally found in closely drilled fields where there is interference or interconnection between wells. It is not uncommon for channeling to occur between wells drilling and wells pumping. In many cases where quantities of materials such as cotton seed hulls, etc., have been used in attempts to recover circulation in the drilling well, such materials have subsequently been pumped to the surface with the fluid of the adjacent producing wells.

In wells where circulation is lost in fissures or channels, the following named variety of materials are often used as plugging mediums in attempting its recovery—cotton seed hulls, bales of cotton, beet pulp, rope yarn, manure, sacks of beans and peas, rice, asphalt and cements. These materials in quantities measured sometimes in tons have been introduced into wells with varying success. In numerous cases immense quantities of such materials have been used and have completely disappeared never to be heard of again. Such problems are unusual and purely empirical of solution and it is the second phase of loss of circulation that this paper will treat. This latter problem has to deal with the causes and remedies of losses of circulation through the normal interstices, great or small, in the formations through which the well is drilled.

Importance of Mud Control

Present practice indicates that such losses can best be avoided by control and modification of the properties and qualities of the mud laden fluid used in drilling. Jones and Babson in their admirable paper on the subject of mud[1] say: "One of the most important functions of drilling mud is to deposit a mud cake onto the walls of the hole which will prevent the loss of water to the formations through which the well is drilled." This statement may be extended to read that proper control of the mud will not only prevent the loss of water to the formation, but in some cases the loss of the entire constituency of the drilling fluid itself, and what is infinitely more important, it will prevent the penetration of water and fluid into the producing formations. Such penetration generally results in a material reduction of the initial and ultimate productivity of such zones.

It is certain that in the past the lack of mud control has ruined the productivity of many wells, and that numerous producing zones have been passed up as unproductive, when, as a matter of fact, they have been sealed off through lack of knowledge of the qualities of the mud-laden fluid required to prevent just such action from occurring.

Structural Characteristics of Formation

In giving consideration to losses of circulation, it is desirable to know something of the medium into which the drilling fluid passes in cases where the formation absorbing the fluid is other than a crevice or fissure. In other words, usually, more or less porous sands. The subject of sand porosity and effect of its grain size has been exhaustively treated by Franklin Hiram King and Charles E. Slichter[2] and certain of their conclusions are interesting in connection with the consideration of lost circulation problems.

From the findings of the above mentioned authorities and from the writer's own observation, it is certain that both the diameter of the sand grains and the amount of pore space resulting from the massing of the grains together, are factors of importance in determining the amount of fluid which may pass through or into a given

THE accompanying paper is a discussion of circulation losses and their relation to the composition of the structures through which they occur, together with a discussion of remedies leading to the mitigation of such losses.

The paper was presented before Spring Meeting of the Pacific Coast Division of the American Petroleum Institute Division of Production on April 14, 1936.

[1] "Evaluation of Drilling Mud" by P. H. Jones and E. C. Babson, presented at the 16th Annual Meeting of A.P.I., Los Angeles, California, November 13, 1935.

[2] "Motion of Ground Waters," Franklin Hiram King and Charles S. Slichter, Part II of 19th Annual Report of United States Geological Survey.

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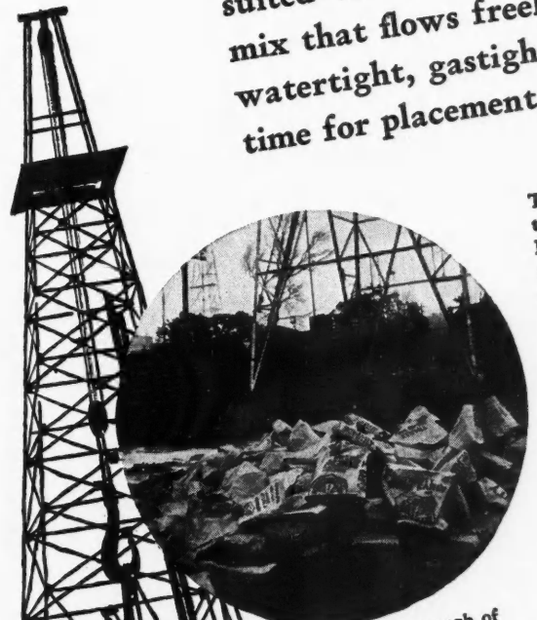

Above is a photograph of a well in East Texas taken just after it was cemented with TRINITY "HIGH EARLY STRENGTH" Portland Cement.

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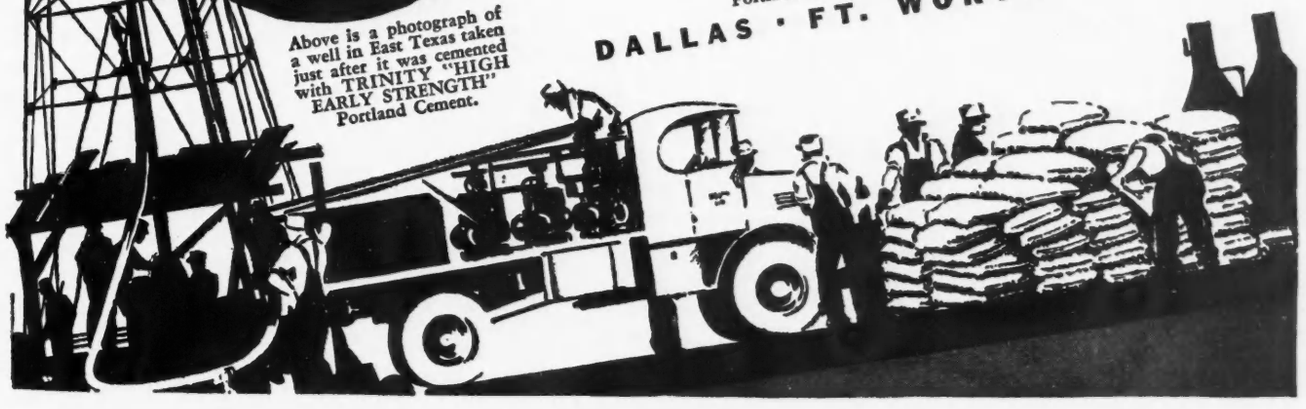


section of any stratum in a unit of time. Consideration must be given not only to the total void space, but to the extent of subdivision and form of the pores between the grains as well.

A mathematical consideration of the relations of the spherical sand grains of uniform diameter to the pore space may be established. The values of the percentage of the pore space for such conditions varies between 26 and 48 percent. These facts may be seen by an examination of Diagram I. It will be seen that at the left of the diagram, where the unit cross section is filled by 16 of the larger spheres, there remain 16 large pores between them, through which the fluid may flow; in the center section of the diagram where the spheres have just one half the diameter it requires the equivalent of 64 spheres to fill the same cross section, thus forming four times as many pores through which the fluid may flow, but leaving each pore only one fourth the area of cross section. Then, again, on the right, where the spheres or grains have a diameter only one fourth that of the largest spheres, it requires 256 grains to fill the sections which form the same number of smaller pores, but each one has only 1/16 of the area of cross section possessed by the largest pore. In such cases as these, where the formation consists of grains first of one and then of another size, the fluid would be forced to travel in one case in 16 streams and in another in 64 streams, while among the grains of the third size there would be 256 streams moving along the same unit area of cross section.

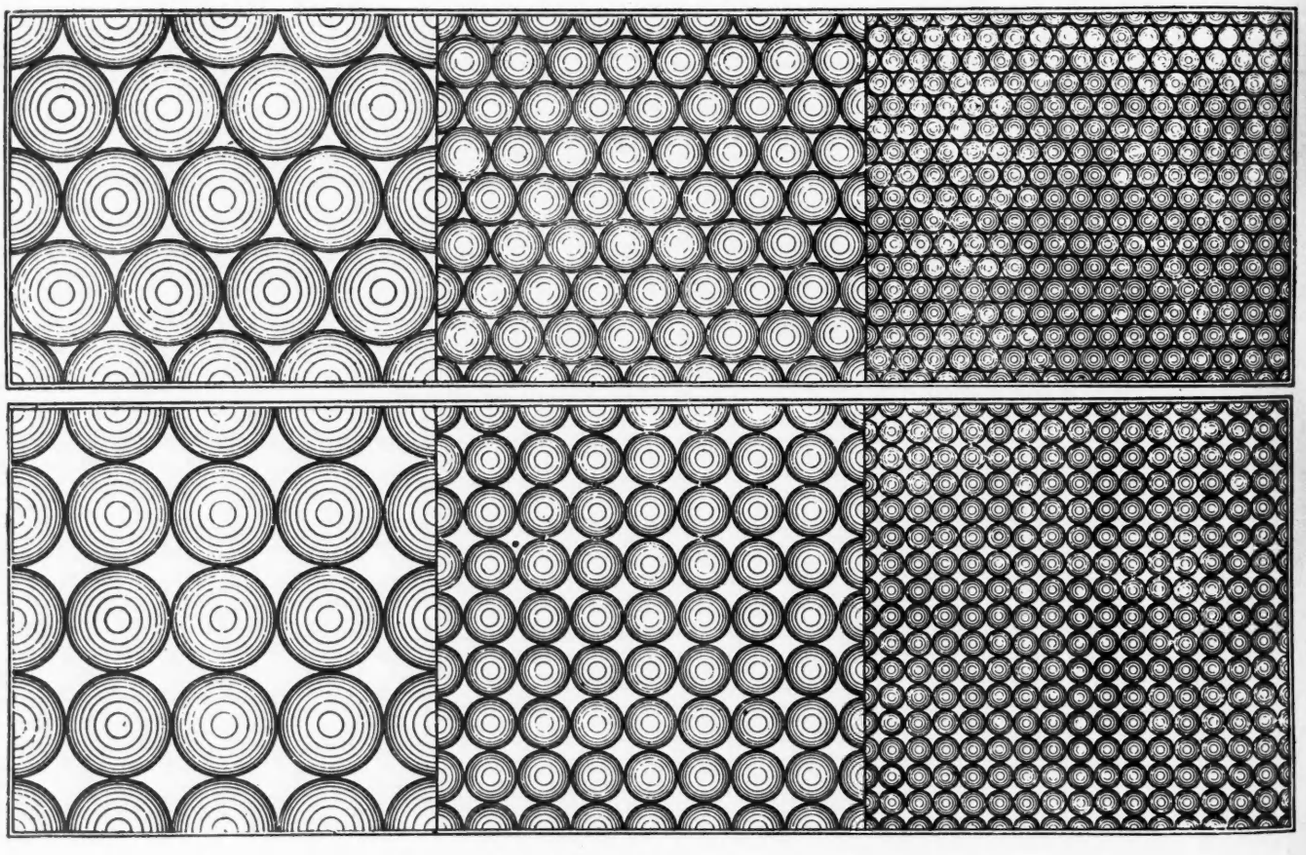
From the foregoing it may be seen that the relative area of the pore space for spherical grains is not altered by their diameters as long as all have the same value and are packed in a like manner; quite the opposite is true with the diameter of the pores through which fluids may move, for doubling the diameter of the grain or sphere increases the area of cross section four times, and permits an increase in flow which is more rapid than the increase in diameter.

Diagram II shows clearly the volumetric relation of the pore space to the solid spherical grains when they are placed in the most compact arrangement possible. As a general rule the porosity of sands varies between 33 and 39 percent of voids. It will then be plainly seen that the coarseness of the grains of the materials making up a specific formation has an extremely important effect on producing areas that will or will not "take fluid" under varying pressures with resulting losses of circulation.

As the size of the grain particles decreases the size of the individual pore channels approach capillary dimensions with correspondingly high frictional resistance to the passage of fluid. It will then be readily understood that such channels can be effectively blocked by the introduction of any inert material that is finely enough divided to readily enter the pore spaces.

In the foregoing paragraphs we have considered something of the structural composition of the sands through which circulation may be lost; as a matter of fact, except for fissures and crevasses, sands and limestones are about the only materials that will "take fluid" as shales and denser rocks are rarely porous enough. It therefore remains to be considered what portion of the drilling fluid is so absorbed and what steps will result in the mitigation of such losses.

In this connection the various forms of testing apparatus now in the hands of investigators along these lines have been of great assistance. Reference has been



MAXIMUM AND MINIMUM PORE SPACE OF SPHERICAL SOIL GRAINS

DIAGRAM I

Unretouched photograph, lease of major operator in East Texas field.

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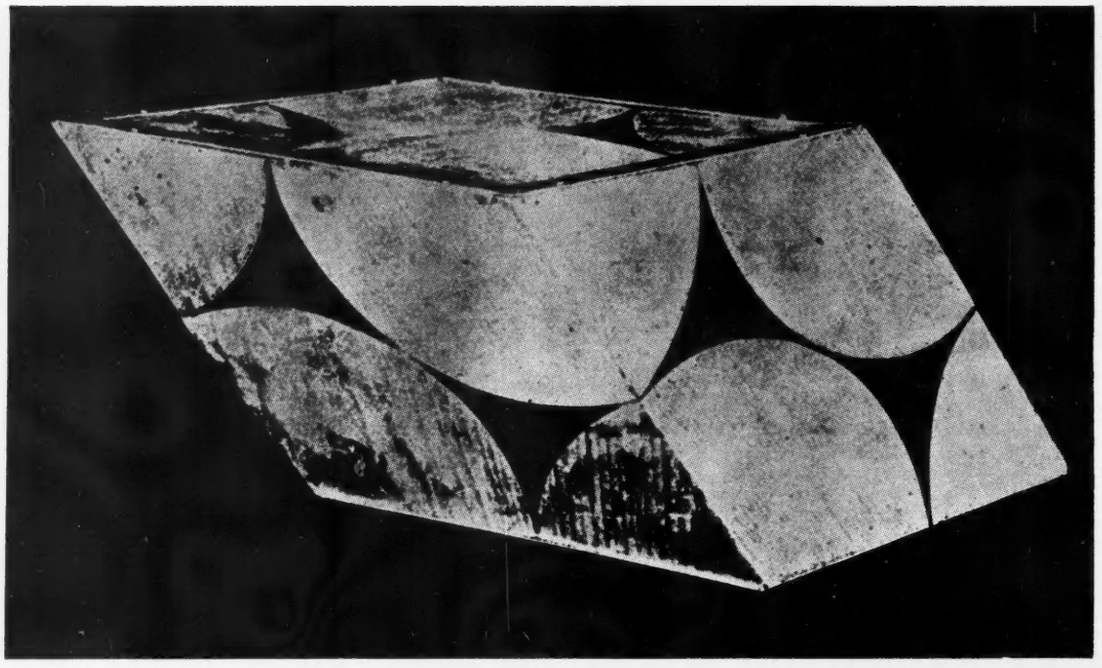
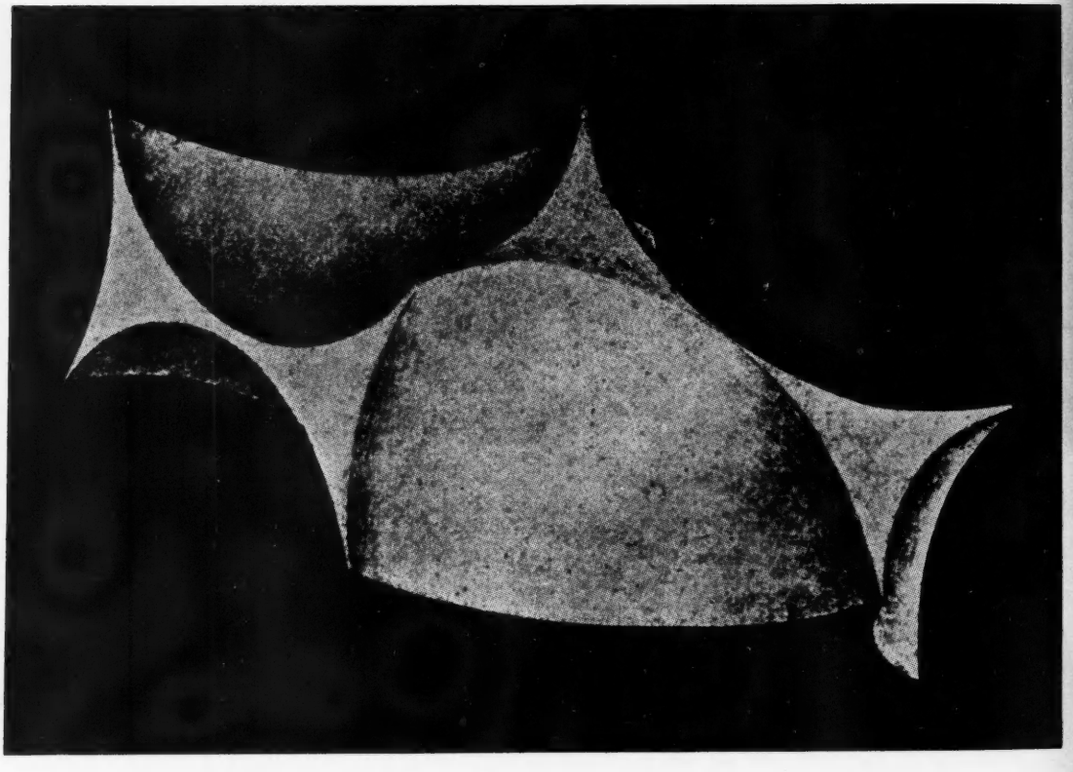


Unit rhombohedron formed by passing planes through the centers of eight contiguous spheres in the most compact packing of a mass of spheres.

DIAGRAM II



Unit element of the pore space in a mass of spheres packed in the most compact manner possible. A plaster cast of the interior of the rhombohedron above. The spheres were not quite in contact, their surfaces being separated about one half centimeter.

made to the "Mud Performance Testing Machine" described and used by Jones and Babson. There are several of these machines available for testing work by those interested, and their use has become general.

Repeated tests, using this apparatus, have indicated that the thickness of the mud cake deposited on the walls of the hole can be controlled, and as a most highly important corollary, the amount of fluid which enters the formation from the drilling fluid can similarly be controlled.

The following statement may be considered in its effect on modern drilling practice—clear water will enter the pore space of any sand freely and its behavior will follow the laws of capillary flow and resistance and is dependent on the size and number of channels around the grains comprising the formation; as indicated in the earlier portion of this paper.

It will thus be seen that in using water alone as a drilling fluid; when the hydraulic pressure in the hole is greater than the formation pressure, the water will enter the formation more or less freely. This will result not only in a loss of fluid, but what is worse, contamination of the formation. Once water is in the formation, it is extremely difficult to dislodge as the tension of the surface film of water surrounding each sand particle resists breakdown to a marked degree and renders the flow of oil or gas through such affected areas extremely difficult. The prevention of such water penetration is a

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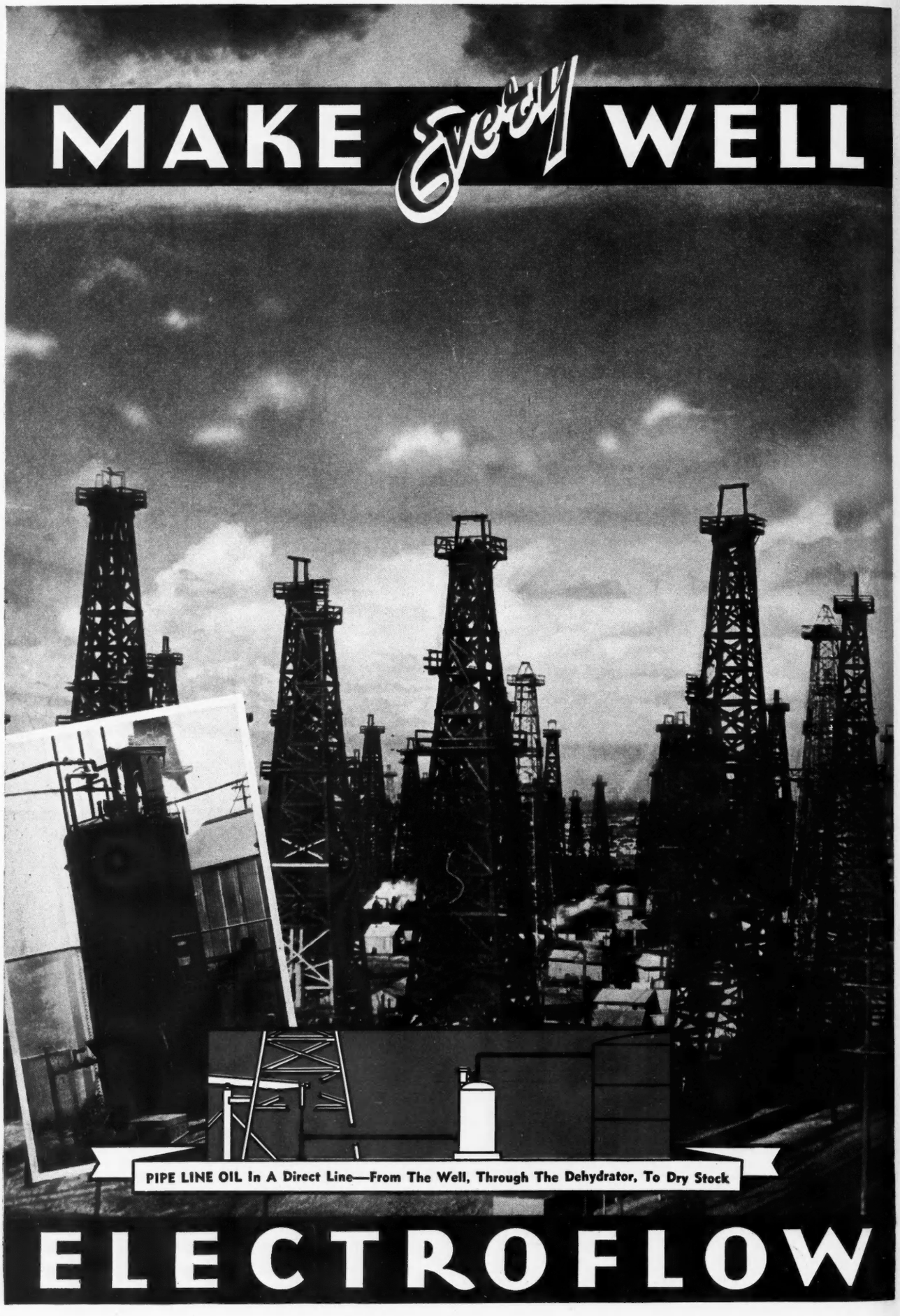
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In oil fields where "cut" oil is encountered, very few of the wells produce pipe line oil. Those that do stand out conspicuously. It has been common practise in the past to produce the emulsified crude into wet oil storage tanks, later treating it to pipe line requirements, and then returning it to dry storage or shipping tanks. As compared to this method, consider the outstanding advantages of Petreco Electroflow Dehydration.

Petreco equipped wells virtually produce pipe line oil—direct from the well, through the dehydrator, to dry stock or shipping tanks—continuously and automatically. Elimination of all time delay permits treating the wet crude in its natural state when it responds most readily and completely. All difficulties of handling prior to treatment and due to changing conditions are eliminated. No sludging or stratification can occur. Many emulsions can be dehydrated at natural well temperatures, avoiding any losses of gravity, light ends or volume. Rather, the quality of the oil is maintained, and in many instances the gravity is raised; thereby commanding a higher price at the well. No wet oil storage is required, and large savings often are possible through the elimination of auxiliary equipment such as boilers and heating facilities, feed pumps, heat exchangers, and cooling towers. Labor is practically nil. Investment and operating costs both are reduced to minimum.

Petreco Electroflow Dehydration applied to individual wells or groups of wells producing emulsified crude is equivalent to actually producing pipe line oil — plus additional advantages which frequently are not otherwise available. When crude production is "cut," even though it is within pipe line requirements, these potential advantages warrant most careful consideration. Detailed information will be supplied on request; and the entire facilities of the Petreco engineering and technical departments are available to oil companies in connection with their emulsion problems at all times, without obligation.

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DEHYDRATION

relatively simple matter when understood and prevention measures should be employed in all cases where water is used as a drilling fluid. The addition of 3 to 5 percent of a colloidal material, such as bentonite, to the water will not only assist drilling by increasing the thixotropic qualities of the fluid; thus rendering the handling of the cuttings from the bit more easily, but will almost entirely prevent the fluid as mixed, or water from the fluid, entering the formation. The increase in the weight of the fluid by such addition is almost negligible. The sealing action caused by the addition of the colloidal material consists in the formation of an almost impervious cake on and in the walls of the hole. Such a deposit has repeatedly been proven able to resist the passage of fluid under pressures as high as several thousands of pounds per square inch. However, the penetration of the colloidal material (bentonite usually) into the formation is negligible. The author has examined numerous test samples which have been submitted to differential pressures as high as 2500 pounds per square inch through long periods of time and which have allowed only a negligible quantity of fluid to pass. In none of such cases examined has the penetration of the colloidal material exceeded 2½ times the grain size of the formation.

The thickness of the cake on the walls of the hole within reasonable limits, is immaterial and as has been explained in divers other papers, is a controllable function of the properties of the drilling fluid.

Further, the deposit of the normally extremely thin cake of colloidal material on and in the walls of the hole does not constitute a bar to subsequent testing, or ultimate production of zones protected by such cakes. Repeated tests have shown that when the pressure in the hole is reduced, a reversed differential pressure of a small fraction of the former "hole side" pressure will readily dislodge the cake and permit free flow from the formation to the well. In fact, in many cases a differential pressure of 2 or 3 pounds per square inch has been found amply sufficient.

The Blocking of Large Voids

The foregoing principle and practice can be applied to formations composed of materials of such coarseness that the pore spaces may be considered as having attained almost crevice or fissure proportions. Referring, for example, to tests made on crushed and washed rock such as enters into concrete aggregates. The rock used for the test in question was of a size that would be retained on a ⅜-inch mesh screen and would pass through a ½-inch mesh screen. Certainly a porous material, and one that water or ordinary mud-laden fluid will flow through with practically no resistance. To shut off the flow through such material, it is necessary to add to the colloidal-laden fluid a quantity of fibrous material; several types of fibre have been used with equally good results. The fibres form a base for the support of the coagulated colloids. Here again the penetration of a cake which will completely seal a formation, as described in the paragraph next above, is usually less than 2½ diameters of the grain size of the formation. In several cases noted, the penetration was not more than ¾ of an inch. Further, in cases of such coarse material there is surprisingly little loss of the fluid during the building up of the cake. The cake thus formed, containing a binder, so to speak, is somewhat more difficult to dislodge on reversal of the pressure than a simple cake composed of colloids alone. This latter fact is not important as it is rarely desirable to reopen such formations when they have been once sealed.

There are various other compounds which have been used with considerable success for sealing off formations. Several of these are of patent or undisclosed composition and most of them consist in the introduction of a chemical agent or compound into the drilling fluid which is then forced in or against the formation. A second chemical is then pumped into contact with the first one which by chemical or physical interaction effects the precipitation of a solid deposit, effectively sealing the formation. Such procedure has met with considerable success commercially and has widespread use. The difficulty in handling such materials being to obtain an adequate contact of the second fluid with the first so that the precipitate may form where desired. The use of chemical compounds in which the resulting precipitate is a carbonate has been used with very considerable success in cases where it is desirable to remove the precipitate after it has served its purpose. In these cases the later use of an acid will generally alter the precipitated carbonate salt which has the effect of removing the binder element so that the remainder of the precipitate can be dissolved or washed away, thus freeing the formation and permitting the resumption of circulation through it. It is further understood that the dissolving of precipitates formed as above, is also accomplished in one or more of the patented or undisclosed processes where carbonates do not form the basis of the precipitated compound.

A Practical Illustration

The behavior of the various wells in the Middle Dome area of the Kettleman Hills field is interesting in light of the foregoing paragraphs.

In this area salt water under a combined hydraulic and gas pressure of 4000 pounds per square inch is encountered at depths of approximately 5500 feet. This requires the wells to be kept filled with mud fluid of a weight of 104.5 pounds per cubic foot (14 pounds per gallon) in order to balance the formation pressure. This pressure must be constantly maintained as even a slight reduction results in an influx of considerable quantities of salt water to the ruination of the batch of costly weighted mud then being used for drilling. Further, great care is required to see that the bit is moved slowly when coming out of the hole, as even at moderate speeds its "swabbing" action is liable to lower the pressure behind the bit sufficiently to allow the water to follow in its wake. Further, upon experimenting with these wells, it is found that lowering the mud fluid weight to 86 pounds per cubic foot (11.6 pounds per gallon) allows 40 barrels of water per hour to enter the well; 89 pounds per cubic foot (11.9 pounds per gallon) mud allows 17 barrels per hour to enter. The interesting feature, however, is that the relation between the formation pressure, the back pressure in the hole, and the amount of water moved is not apparently a reversible relation. There seemed to be set up an osmotic condition in which the mud sheath in the hole acts as a semi-permeable membrane, allowing the water to pass readily out of the formation into the hole but does not allow the mud-laden fluid, nor water from it, to return to the formation upon reversing the pressures. This is demonstratable by the fact that increasing the mud weight up to 118 pounds per cubic foot (15.9 pounds per gallon) which has the effect of increasing the pressure against the formation to 4500 pounds per square inch resulted in forcing the mud-laden fluid into the formation at the rate of only 3 barrels per hour. A further increase of the pressure equivalent to a mud weight of

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Whether drilling in extremely hard rock or exceedingly soft formation, there is a Dean Interchangeable Core Head to fit the job.

For ordinary formations Dean Regular Core Head (Fig. 1) is used. It embodies the conventional three-way drilling characteristics for breaking up formations and reaming hole to size. Makes fast hole and runs smooth.

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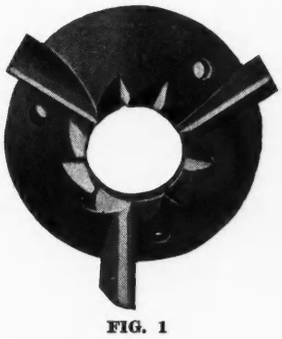

FIG. 1

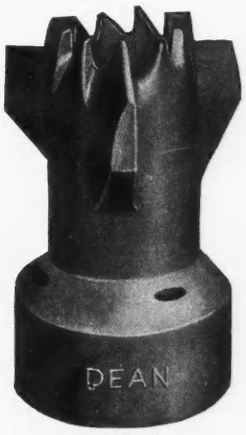

FIG. 3

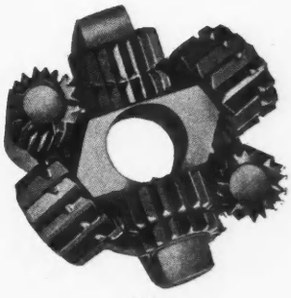

FIG. 2

Available in bit sizes from 5⅝" to 27" diameter with standard 20-ft. barrels. Special sizes can be supplied on order. Write for latest illustrated bulletin.

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133 pounds per cubic foot (18 pounds per gallon) causing a total pressure against the formation of 5100 pounds per square inch resulted in forcing fluid back into the formation at the rate of approximately 6 barrels per hour. Diagram III is a curve on which is plotted composite data obtained from several wells in this area and shows this phenomena in detail.

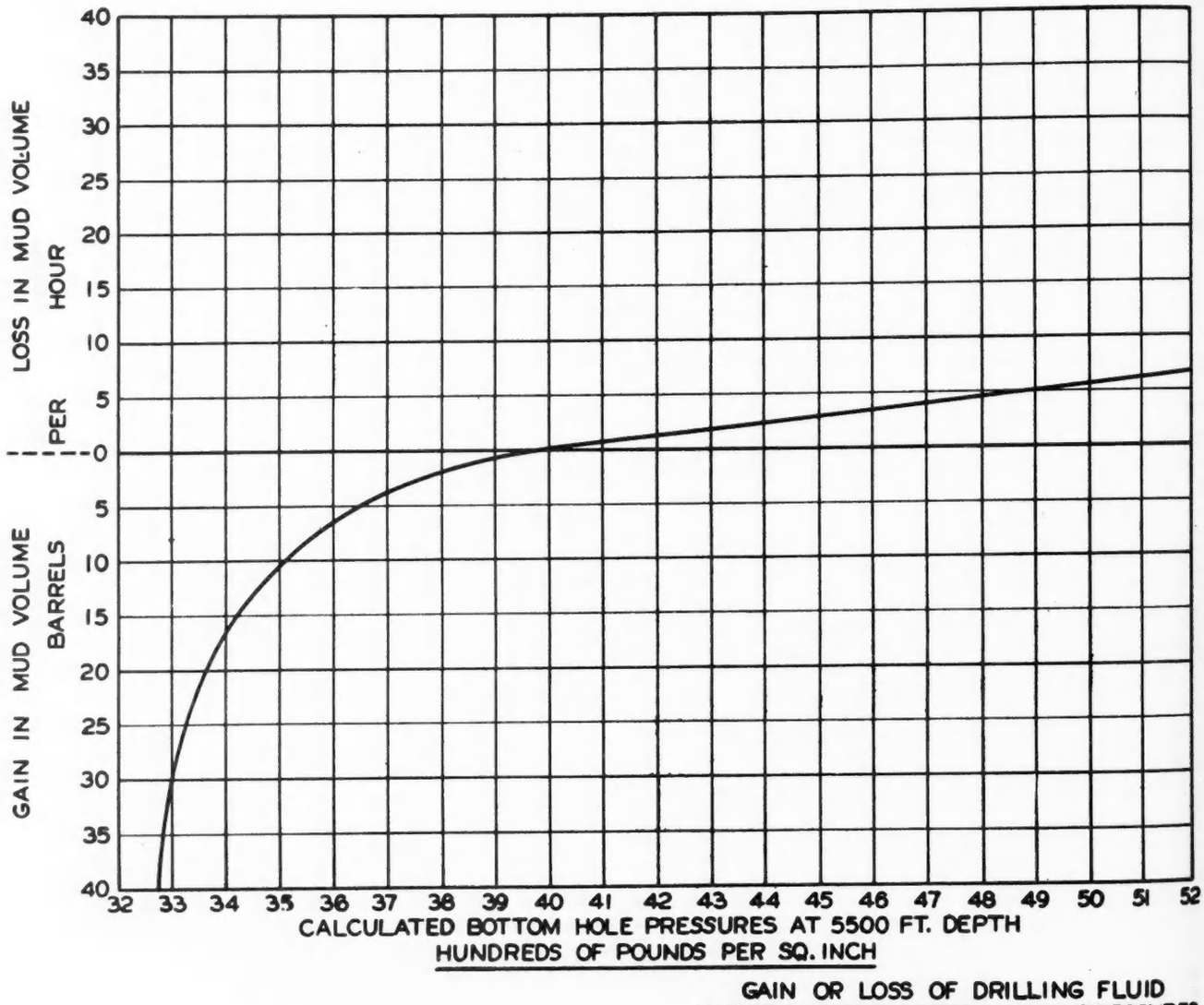
The explanation of the above is relevant in that it entirely supports the theories advanced in the previous paragraphs of this paper covering the control of circulation losses. It is as follows: First, the brown shale formation which carries the salt water flow, contains considerable content of bentonite of colloidal dimensions. Secondly, weighted mud is invariably used in drilling and the material forming the added weight is kept suspended by the adition of bentonite to the mud. The quantity of colloidal material thus present is sufficient to act as previously described and successfully resist the action of pressure increases attempting to force the fluid out of the hole. However, as explained, the colloidal material enters the formation so slightly that a relatively small differential between the formation pressure and the pressure in the hole will allow a dislodgement of the obstructing material and the water to enter the well with relative freedom.

Conclusions

From the foregoing it may be seen as circulation losses occur through the interstices of the grains of material comprising the formation, the size of such pore spaces are important. Generally, such pore spaces are practically capillary in their dimensions. Losses of the circulation fluid are more important than the actual physical loss of all, or a portion of the drilling fluid, in that such losses are extremely liable to ruin the ultimate productivity of the formation receiving the fluid.

However, due to the capillary size of the pore spaces, they may be readily blocked by the introduction of a small amount of colloidal material deposited in the mouths of the capillary tubes comprising them. This blocking forms an impervious seal against fluid encroachment, thus protecting the formation from contamination as well as preventing losses of the fluid itself. The actual penetration of such colloidal material into the formation is very slight and has been found to be readily removable upon reversal of the pressures.

The actual behavior of the wells in the high-pressure gas and water area in the Middle Dome section of the Kettleman Hills oil field, serves to illustrate the behavior of colloidal-laden fluid under actual field conditions.


LOSS IN MUD VOLUME PER HOUR
GAIN IN MUD VOLUME BARRELS
40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
CALCULATED BOTTOM HOLE PRESSURES AT 5500 FT. DEPTH
HUNDREDS OF POUNDS PER SQ. INCH

GAIN OR LOSS OF DRILLING FLUID
UNDER VARIOUS BOTTOM HOLE PRESSURES
MIDDLE DOME AREA KETTLEMAN HILLS
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DIAGRAM III

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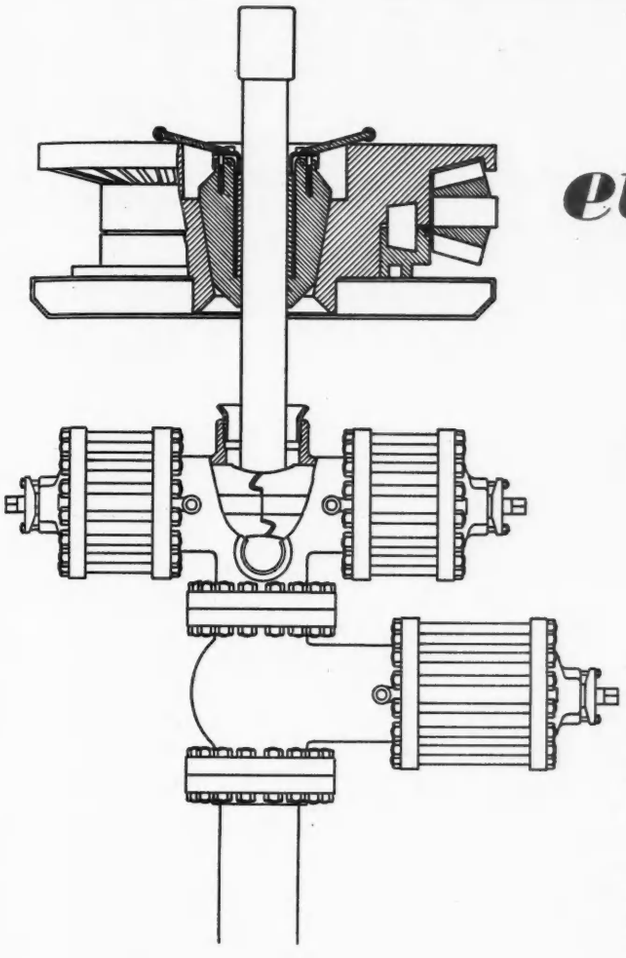

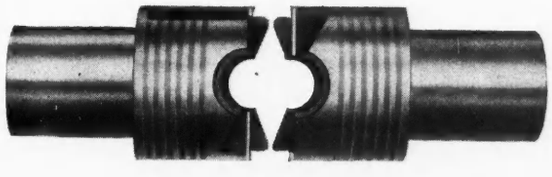

Above—View looking straight down on a set of Cameron self-centering rams. Note how the angular wing-guides on opposing rams form a "V" on each side of the concave faces of the rams. As rams continue to move together, the "V" is gradually closed, forcing pipe to the center of the rams, where it is instantly sealed. This exclusive feature of Cameron Blowout Preventer rams definitely protects users against failure of preventer to close because pipe is hanging to one side of the hole.

Conditions:

1. ***Derrick out of plumb, or, rotary off center.***
2. ***Drill pipe suspended on slips.***

Even under these difficult conditions, should your well start to unload, Cameron Self-Centering Rams in a Cameron Pressure Operated Blowout Preventer will automatically force drill pipe to center of casing, and instantly seal off. Naturally, the joint up will be bent slightly.

Each Cameron ram is built with two angular wing guides, as shown below. As rams move toward the closing position, the wing guides in opposing rams contact the pipe—if it is hanging off vertical. As rams continue to close, wing guides force pipe between concave faces of opposing rams. When ram travel is completed, pipe is exactly centered in the rams, and in the hole.

No other ram-type blowout preventer gives you this sure, positive protection when drill pipe is hanging to one side of the hole. Self-Centering Rams are exclusive with Cameron Blowout Preventers.

So, also, is self-feeding ram packing, which permits long periods of rotation and spudding through closed rams; instant and positive pressure closing and opening; and more than 30 other outstanding features. By all means examine the Cameron Type SDA Preventer before placing orders for new equipment. They give you the absolute maximum of protection against costly blowouts.

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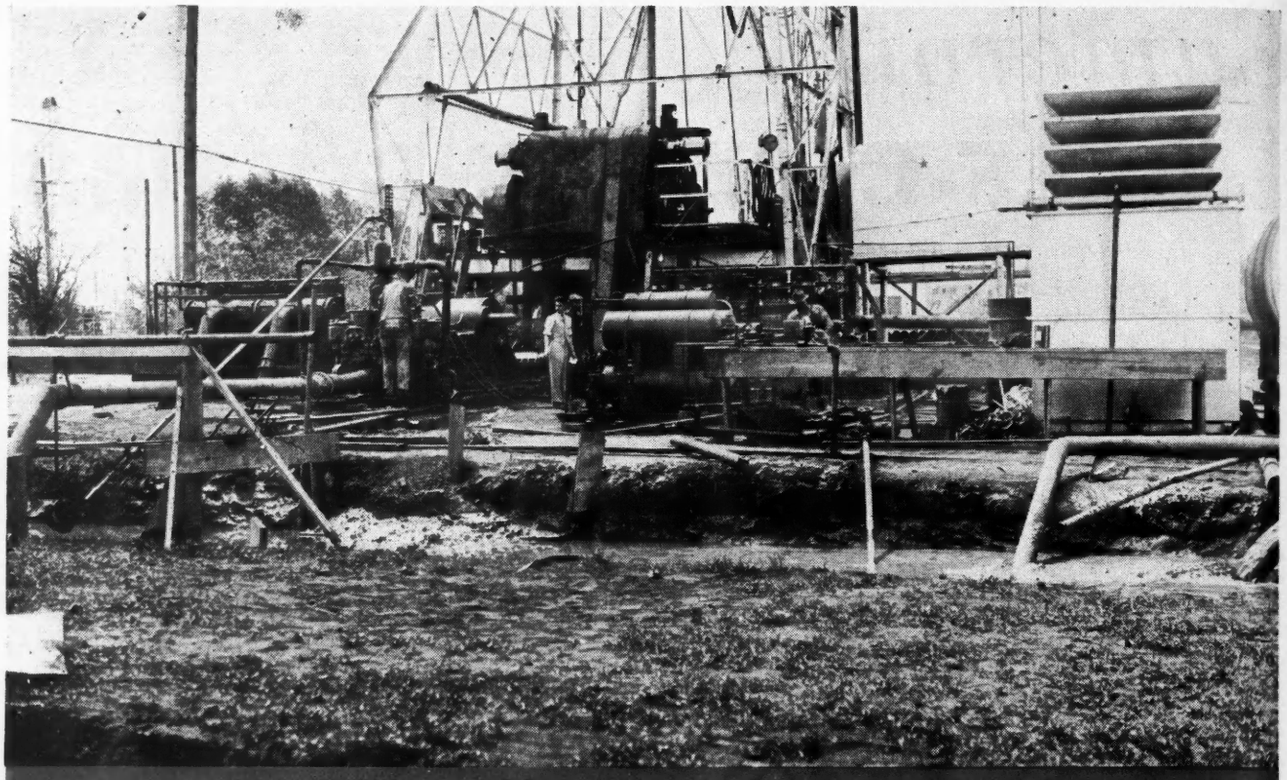

W. T. Payne's Diesel-powered rig being used at Oklahoma City.

Full Diesel Rig

TWO ENGINES DRIVE ROTARY UNIT THROUGH CLUTCH TRANSMISSION

By JOHN C. ALBRIGHT

THE first entirely Diesel-powered rig to be used in the Oklahoma City field is owned by W. T. Payne, who is drilling a well in the Mansion area. The power unit consists of two full Diesel engines that transfer their power directly through a transmission to both the drawworks and slush pumps.

The two engines are six-cylinder, two-cycle marine-type units with 240 horsepower at 400 revolutions per minute. Coupled together, the two engines will develop a peak horsepower for hoisting of 750 horsepower. They are consuming $12.00 worth of fuel oil and lubricating oil every 24 hours. The water required has been quite small.

The two full Diesel engines have a bore and stroke of 10 inches by 12½ inches, respectively, and may use any type of oil suitable for Diesel power, but distillate is consumed at this well. The engines sub bases are bolted permanently to structural steel foundations, which in turn are set upon concrete clabs flush with the surface of the ground instead of upon a substructure level with the derrick floor. This feature, made possible through the use of a special transmission drive for the draw works and rotary table, enables the engines to be located on the ground.

Both engines rotate in a clockwise direction. They are placed with the flywheel end facing each other, so forward and reverse may be obtainable readily through the arrangement of the power transmission and speed direction change clutches. The gear box, the only one used, is a simple one to one ratio, placed in position between the engines. Either engine or both may be operated whenever desired. Full control of the operation of the assembled unit is obtained by the driller at the conventional side of the draw works, where valves are located that control the compressed air pistons for clutch operation, reverse and forward movement of the draw works, mud pump operation and the like. Starting of the engines is accomplished with compressed air furnished by a small unit separate from the two engines, which also generates electrical energy for rig light-

Even Helium

IS CONTROLLED BY

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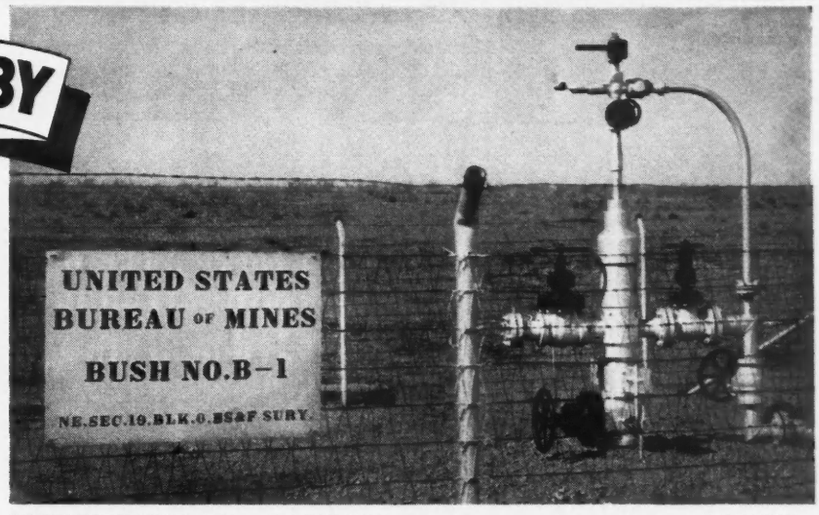

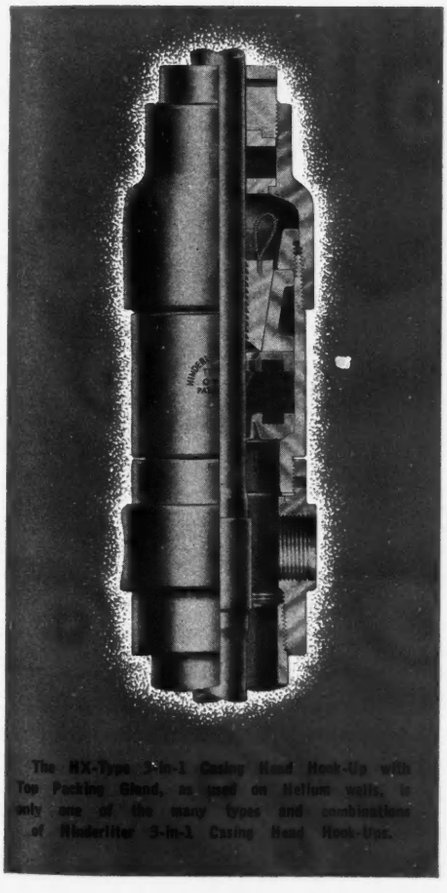

The HX-Type 3-in-1 Casing Head Hook-Up with Top Packing Gland, as used on Helium wells, is only one of the many types and combinations of Hinderliter 3-in-1 Casing Head Hook-Ups.

Helium, the "almost perfect" gas, was discovered by P. J. C. Janssen in 1868 while studying the light of the sun spots through a spectroscope.

Helium was first discovered in natural gas and in usable quantities, when a gas well was drilled at Dexter, Cowley County, Kansas, in 1903. When the gas was offered for sale it would not burn, and upon being tested was found to have a very high Helium content.

Helium is a non-combustible gas with great lifting power and having a high conducting power for heat and electricity. Its greatest usage at the present time is in lighter-than-air airships. Due to its scarcity, its peculiar nature and utility, even the slightest loss of the gas containing Helium must be guarded against.

Hinderliter 3-in-1 Casing Head Hook-Ups comprise the most versatile and comprehensive line of casing heads available—from which any combination can be effected for any well situation.

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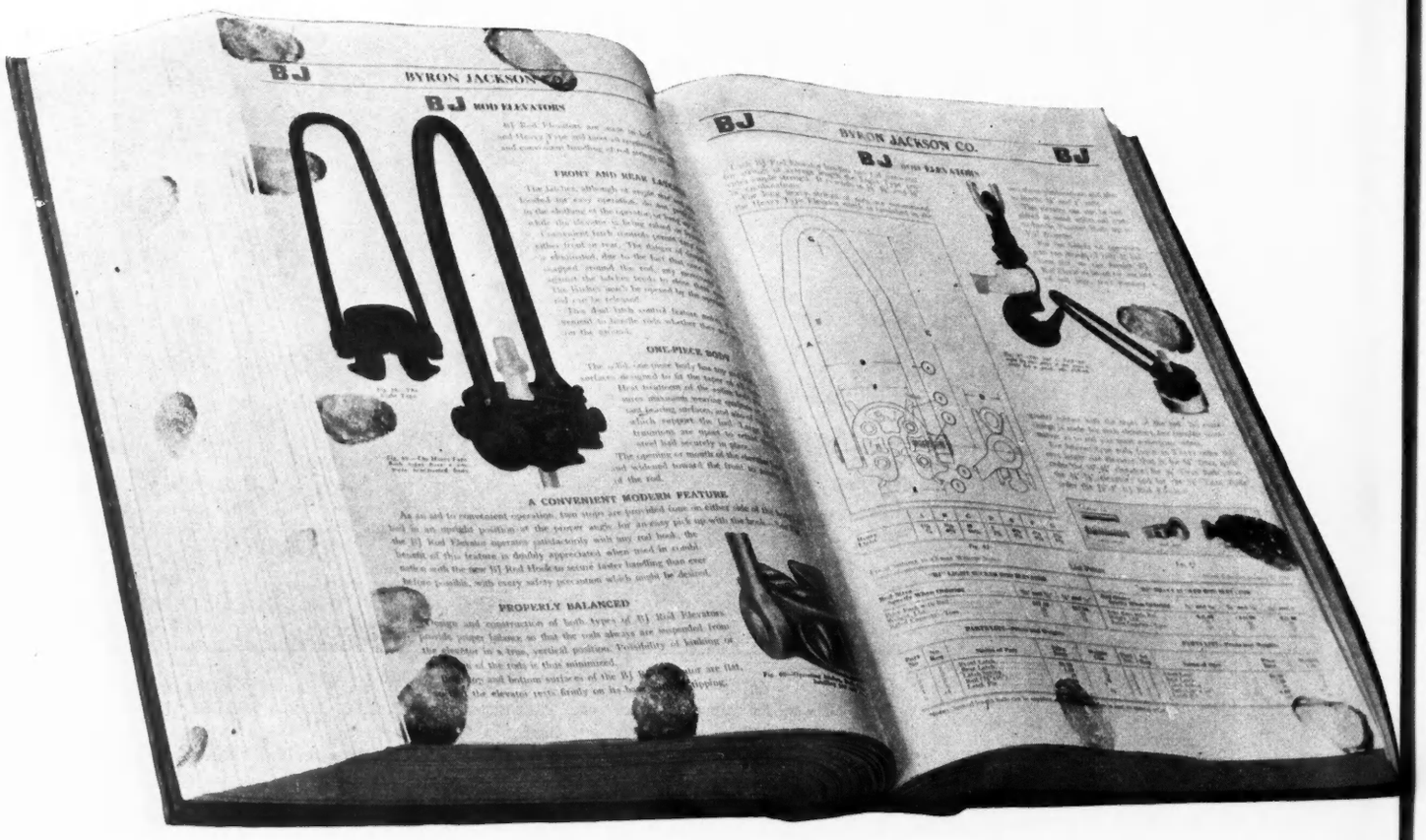

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Drilling Contractor Al Buchanan expresses his idea of the value of the Composite Catalog this way: "my Composite Catalog is as essential as my drilling derrick. I can't be bothered lugging around a lot of individual catalogs. I find listed in it everything I need, and I use it constantly." And many a white collar guy in the offices has written to say; "it's the berries." So if your fingers haven't smudged the pages of your copy of the Composite Catalog, don't say we didn't tell you how to save time when selecting oil field or pipe line equipment.

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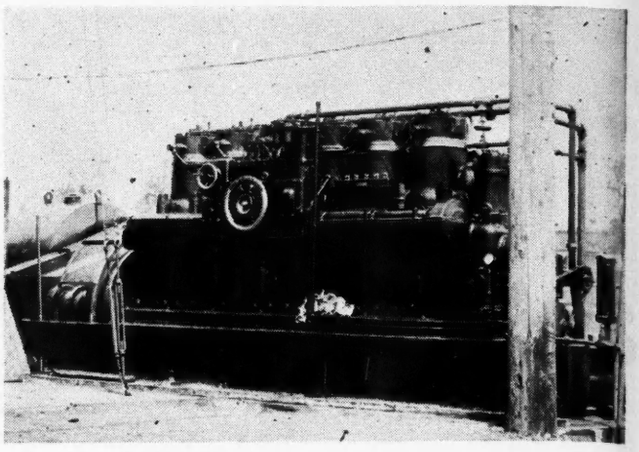
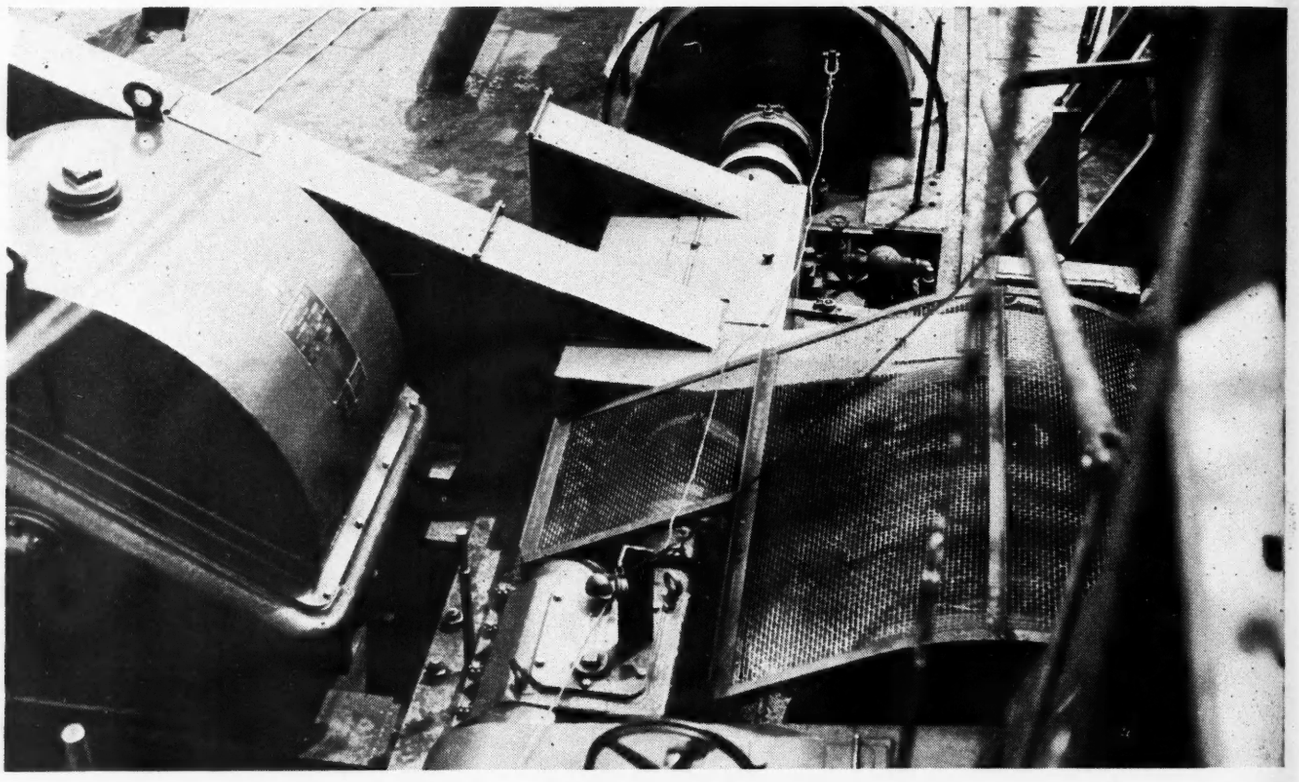
ing, mud screens and other current needed around the drilling well.

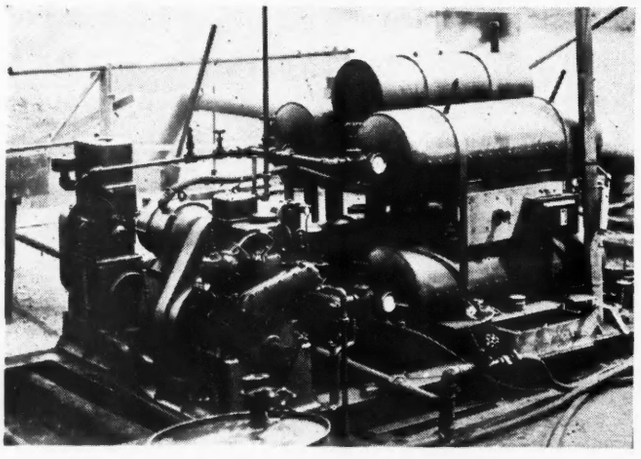


One of the two Diesel prime movers.

Transmission of power from the engine shafting to the mud pump, on one side, and the draw works and rotary table on the other is obtained by the use of multiple roller type chains from sprocket to sprocket. Two separate clutches are mounted on carriers, which are in turn carried by roller bearings to reduce friction. When one clutch is being engaged, the other is being released from contact with the friction surface of the assembly. The right hand clutch is connected directly to the right hand engine used for forward running, while the other is connected in the same manner with the left hand engine and is used for reverse operation. This type of drive, having a fixed difference in direction of movement, enables the driller to change from forward to reverse easily and quickly.

Looking down on the rig transmission system.





The air compressor and rig lighting unit.

"Feathering," or time lag in the engagement of the clutches to prevent sudden shocks and stresses is obtained by the special air valves at the drillers side of the draw works.

Speed obtained with this type of drilling machinery is comparable to any other type generally used in deep drilling, and this particular well was drilled to a depth of over 3000 feet in seven days elapsed time, when observations were made. The drillers employed on this rig have recently become familiar with internal combustion power, and they state that operation is as smooth, practically, as with steam driven rotary equipment.

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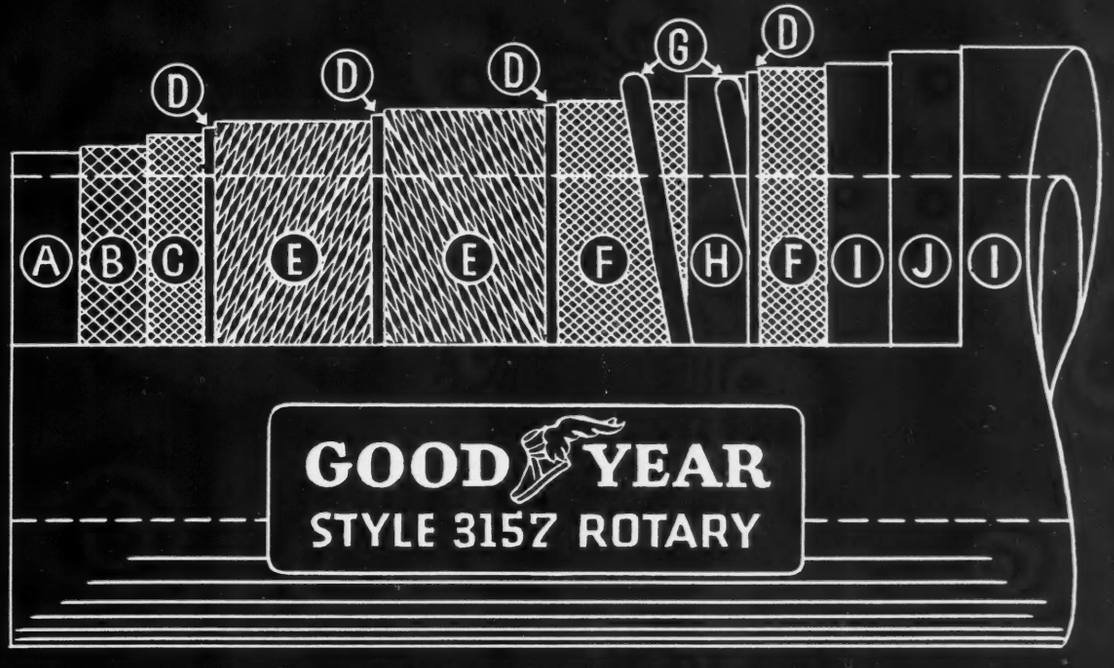

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F — Heavy duck ply.
G — Wire helix of hard steel to prevent crushing.
H — Rubber filler insulating helix.
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INTERESTING PRACTICES ARE USED IN CONVERTING OLD OIL SYSTEM INTO A

Gasoline Pipe Line

By H. H. KING, Staff Writer

CONVERSION of an eight-inch oil line in Humble Pipe Line Company's system, extending from the East Texas field to Humble Oil & Refining Company's refinery at Baytown, Texas, a distance of about 300 miles, into a natural gasoline carrier has been completed. Sections of new line, aggregating 60 miles, were constructed at intervals where eight-inch pipe was not available for diversion from crude to gasoline movement.

In converting portions of the old crude system into the gasoline line, the entire line was ditched and collars welded together with reconditioning of sections where bad pipe was encountered. All new sections placed in the line were also strictly of welded construction, and every foot of the pipe was tested with a standing hydrostatic test for 12 to 24 hours to determine poor welds, bad pipe, etc.

Guided by a pipe line locator, a ditching machine removed the soil from the old buried pipe, except where surface conditions required the use of laborers in stripping the pipe. The line was raised with hoist-equipped tractors and elevated upon skids to permit the operation of cleaning machines. Coupled pipe was used in the old section of the line built from Groesbeck south. As part of the rehabilitation program, the collars were burned after being traversed by the cleaning machine so as to remove all traces of cement, oil or grease as a safeguard against oxidation of welds. Hand scrapers were employed to further cleanse the surface around the collars.

The renovated pipe was cut in sections, ranging from 5 to 20 joints in length, depending upon the topography of the right-of-way. Sections bearing signs of severe interior or exterior corrosion were ordered thrown out and replaced with new pipe by inspectors. Each end of the collars was electrically welded.

Upon the completion of reconditioning work the pipe sections were lined up into their original position and welded together with oxyacetylene torches.

About 50 percent of the old line showed exterior corrosion, varying from a nominal pitted condition to severe "hot spots." This section of the line was thoroughly insulated, using a primer coating, followed by a thick application of hot corrosion resisting compound. The pipe was then wrapped with felt paper, applied by a hand operated machine. No insulation was used on sections of the old line that survived previous service without corrosion.

Sections of new pipe constructed on the north portion of the line were treated as above, except that each pipe joint was run separately through a semi-portable doping and wrapping rack set up along side the trench.

Hand operated machine used for wrapping old pipe in action.

Five-mile section of new eight-inch pipe was built from the London booster station to Arp. Most of this right-of-way lies within the productive limits of the East Texas field, and a total of 261 oil, gas and water cross-lines were encountered. Fifteen miles of new line were built from Love Lookout into Todd station, and a seven-mile unit from the latter point to the southwest. Another unit, consisting of six miles, was installed to parallel two eight-inch crude lines, extending southwest from Fairfield station.

In order to eliminate contamination of any petroleum products that might be handled through the system, a cleaning process employing the use of kerosene was used and accomplished in the follow-

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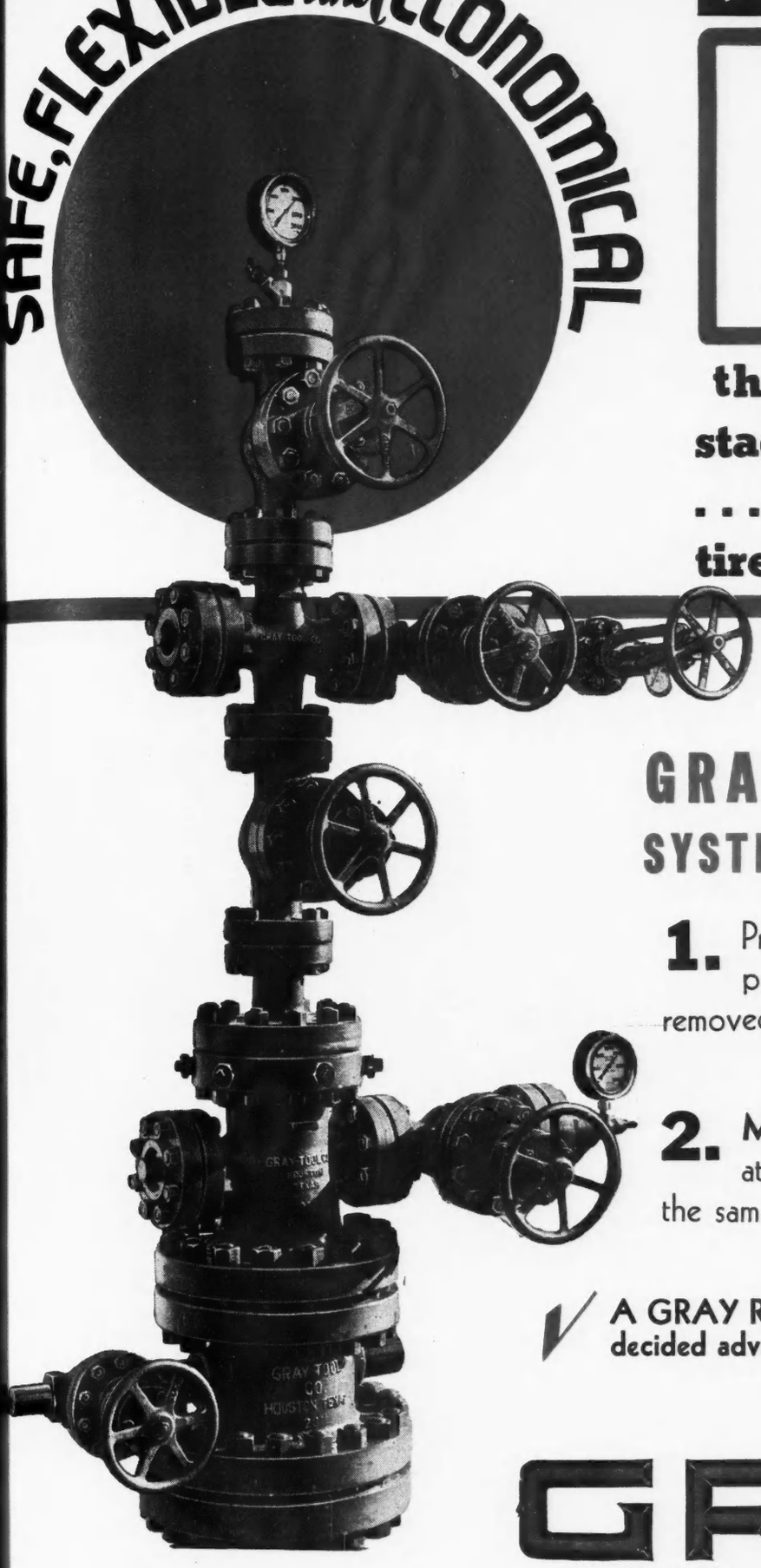

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ing manner: Approximately 25,000 barrels of kerosene distillate was purchased by the company and stored in tankage in the East Texas field in the vicinity of the London pumping station. An equivalent amount was stored in tankage at Humble Oil & Refining Company's Baytown refinery. The line was first displaced with water, using scrapers starting at Baytown and pumping through Hearne, following the water with a caustic solution, then stocks of kerosene. The scrapers were inserted at stipulated intervals, and tanks were set aside at Hearne for receiving the kerosene from Baytown. A similar scheme was used in the section of the system running from London to Hearne by drawing on accumulated kerosene stocks at London.

At present the line will operate with but one pump station, located at London in the East Texas field. It is estimated the capacity of the line with this one station will be 9,000 barrels daily. There is a possible capacity of 12,500 barrels per day, if and

Right: After being doped every joint of new pipe was run through a wrapping rack.

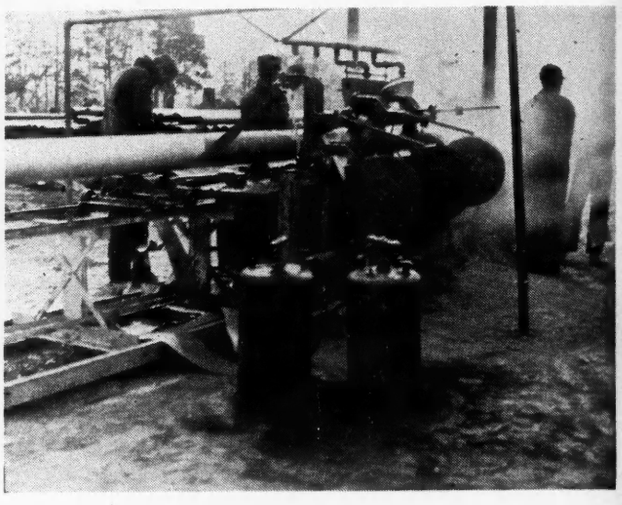
when an intermediate station is installed at Hearne.

The station at London is composed of two 300-horsepower convertible gas engine driving 8-stage centrifugal pumps through speed increasers, one of which engines will operate for maintaining line capacity with one unit as a spare. Two 2500-barrel spherical tanks constructed to work at 100 pounds pressure will be used for receiving from the field the gasoline and casinghead mixtures through displacement meters for measuring capacities and employing the use of adequate measuring facilities such as pressure gauges, vapor pressure recording gauges, temperature recording gauges, settling tanks, etc. All equipment is so arranged that a back pressure can be maintained on the entire system, including suction of the pumps of a range sufficient to insure at all times that the product to be handled is in liquid form.

Humble Pipe Line Company's natural gasoline carrier will handle the entire output of Humble Oil & Refining Company's two large plants at New London and Kilgore and purchases by the latter under long term contracts held with Hanlon Gasoline Corporation of Texas and other independent plant operators. Hanlon Pipe Line Company, subsidiary of Hanlon-Buchanan, Inc., recently constructed about 40 miles of six-inch line to transport natural gasoline from the above concern's plant in the northwestern Gregg County section of the East Texas field to the London booster station on Humble Pipe Line Company's gasoline line, with laterals connecting with the plants operated by Gregg-Tex Gasoline Corporation and Sabine Valley Gasoline Company.

Natural gasoline produced by Humble Oil & Refining Company's plant in the Conroe field will also be transported by pipe line to the Baytown refinery. Humble Pipe Line Company is scheduled to place in operation late this month a welded line, comprising 21 miles of four-inch and seven miles of three-inch pipe, that extends from Conroe to Satsuma, where connection is made with the East Texas-Baytown carrier. Oklahoma Contracting Corporation, Dallas, has the contract for the laying of this lateral unit. Construction work is scheduled to be completed by mid-June.

Left: Each joint of new pipe was run separately through the semi-portable doping rack.



Installation of the gasoline line from East Texas to the Coastal terminal was announced by Humble Pipe Line Company late last year. Contract was given Oklahoma Contracting Corporation to build five sections of new line, and to rehabilitate the old line. Work began shortly after the first of the year, but was retarded somewhat by adverse weather.

In converting the south end of the crude line into a gasoline carrier, the latter was routed around Humble Pipe Line Company's Webster terminal and tank farm by the construction of 6800 feet of new line to intercept an idle eight-inch unit that was previously used in delivering crude from a Coastal field to Baytown. Approximately 7000 feet of new pipe was built by Humble Pipe Line Company across a shallow bay in reaching the Baytown terminal with the gasoline carrier.

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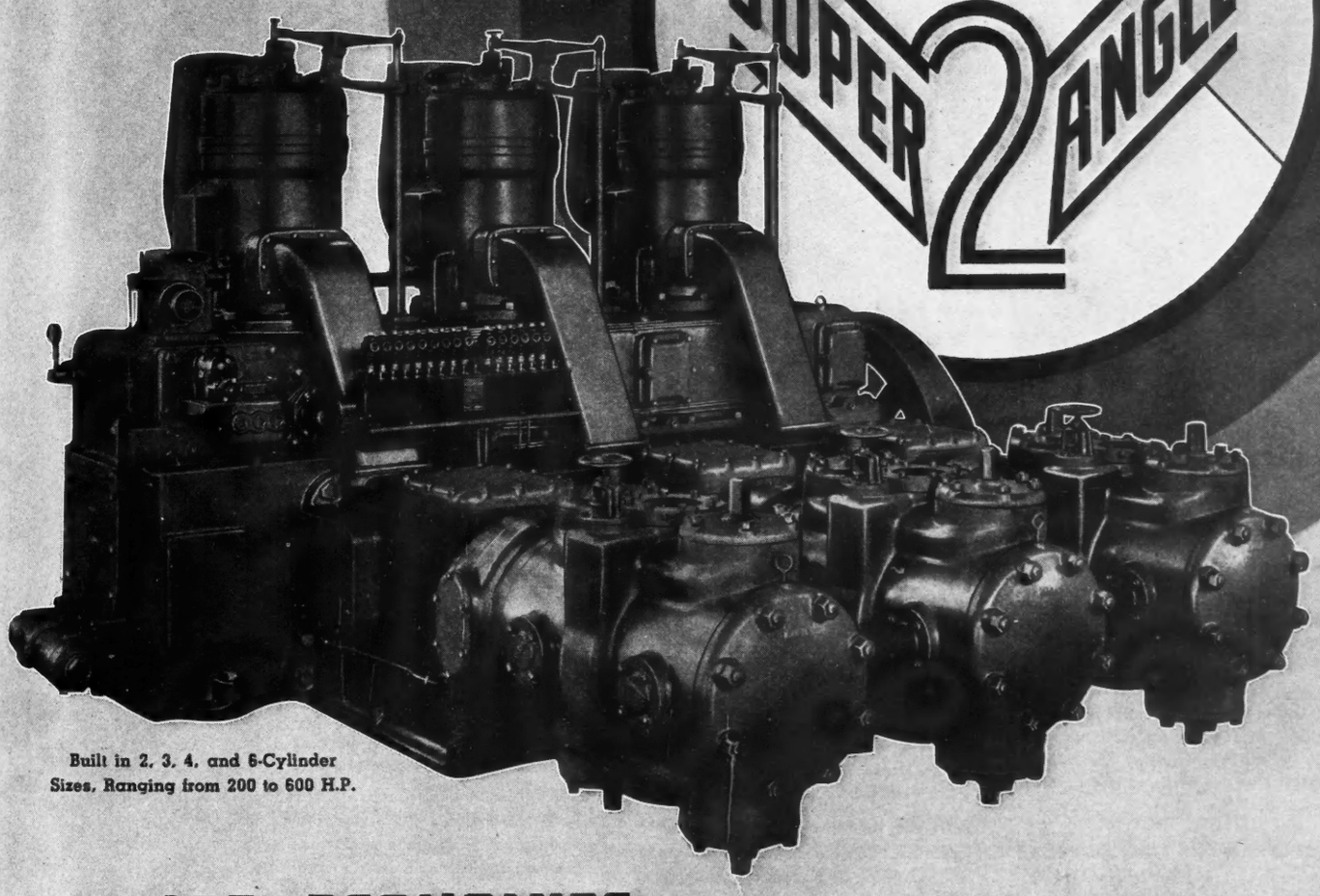

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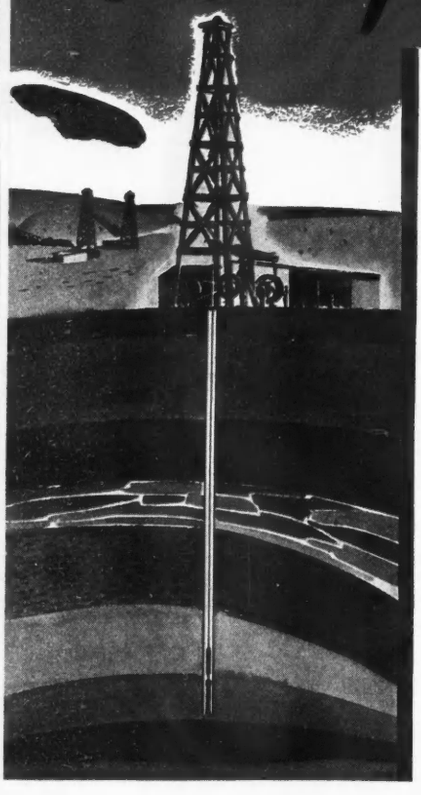

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No. 2 — *Aids Casing Recovery.* A mixture of 24½ lbs. of Aquagel per barrel of water placed in the annular space between casing and formation will almost assure 100% casing recovery. Aquagel so placed helps prevent sloughing of the formation around the casing and in addition provides a lubricant for its recovery.

No. 3 — *Cuts Down Recovery Time.* Field experience has proved that by using Aquagel the time spent in recovering casing is reduced by more than half.

No. 4 — *Prevents Corrosion.* The gel-forming colloidal material in an Aquagel-water mixture provides a coating which minimizes the effects of corrosion on the casing.

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No. 3 — *Helps Prevent the Loss of Circulation.* Aquagel added to drilling mud helps to seal and consolidate formations and often lost circulation can be restored by adding increased quantities of Aquagel to the mud.

No. 4 — *Prevents Sticking of Drill Pipe.* An adequate viscosity can be maintained by the addition of Aquagel to the mud system which will suspend sand and shale cuttings indefinitely when circulation or rotation is stopped.

No. 5 — *Prevents Wear.* The colloidal nature of Aquagel acts as a lubricant to pumps and all moving parts as well as to the casing and walls of the hole.

No. 6 — *Combats the Effect of Temperature.* The high temperatures encountered in deep wells have a detrimental effect on the wall-building qualities of mud. This characteristic can be preserved when Aquagel is added in correct amounts.

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PRACTICAL MEANS OF MAINTAINING EFFICIENCY OF

Large Gas Transmission Lines

By B. M. LAULKERE, Engineering Supervisor,
Southern California Gas Company,
Los Angeles, California

IN summing up the test of this paper, the following brief abstract points out the important points covered. The important controllable factors affecting pipe line flow efficiency are:

(1) The accumulation of foreign matter consisting of dust, dirt, liquids and gas hydrates. These tend to reduce the sectional area of the gas passage and cause excessive pressure drop.

(2) Internal corrosion, the products of which either adhere to the pipe wall and increase the coefficient of friction, or drop off and accumulate as in the case of foreign matter from other sources.

Means have been developed to counteract the effect of these actions. After a survey has been made to establish a basis to which fluctuations of efficiency can be compared, certain precautions can be taken to eliminate or minimize the factors tending to reduce the flowing efficiency. In the case of dust, dirt or liquid accumulations, adequate scrubbers will aid in preventing concentration of these materials.

However, where the formation of gas hydrates is involved, the only proven method known to the writer which can be used to advantage for maintaining the flowing efficiency, is partial dehydration by absorption.

Internal corrosion can be practically eliminated by partial dehydration. This may be accomplished by atmospheric cooling, refrigeration or absorption. Each method has its limits and possibilities.

In the case of reduction of flowing efficiency in an old line due to the accumulation of the products of corrosion on the inner wall, means have been developed for increasing the flowing efficiency by blowing steel shavings through the line. The method described is entirely feasible and practicable.

THE problem of maintaining the efficiency of gas transmission pipe lines has, within the past few years, become recognized as one of major importance to the natural gas industry. Prior to the present era of long distance transmission systems which require tremendous expenditures for construction and operation, the value of flowing efficiency was not generally appreciated.

In the text of this paper, which was presented before the Natural Gas Division of the American Gas Association at the Dallas meeting, the most important factors affecting pipe line efficiency will be reviewed, and an endeavor made to give a method of solution to those interested in the problem.

Factors Tending to Reduce Pipe Line Efficiency

It is recognized that flow formulae are based on relations which hold for a straight, level pipe line, free from bends or other obstructions to flow. Since all lines have bends, valves, fittings, etc., the volume delivered is always somewhat less than the calculated volume. It is readily apparent that the effect of these obstructions cannot be eliminated, but the engineer can make allowances for them in the design. Hence, for the purpose of this paper, this factor will not be considered in the maintenance of pipe line efficiency.

Among the other factors which tend to reduce the efficiency of a transmission system is the accumulation of foreign matter at various points in the pipe line. These materials consist chiefly of:

(1) Dust, dirt and other solid foreign matter.
(2) Water and other liquids.
(3) Natural gas hydrates.

During the construction of a pipe line there will invariably be an accumulation of dust, dirt, welding slag and other material in the line. This debris is usually distributed quite evenly throughout the length of the line, and if it is not removed by blowing the line before it is placed in operation, it is likely to be carried along in the stream of flowing gas and accumulate in low places, fittings, valves and other similar points. The effect of this accumulation is a partial blocking of the gas passage and a resulting excessive pressure drop at these points.

Another source of dust and dirt is from polluted gas, especially if the gas is received directly from the wells and the gathering lines are not adequately protected. If the gas is received from absorption

plants it is usually comparatively free from dust and dirt, but may contain corrosive elements as well as water and oil.

Water and oil accumulations are very common in natural gas transmission lines. These may enter the system in the liquid form or may be contained in the gas as vapors. In the latter case, it is entirely possible that, as the pressure and temperature relationships change, the condensation of the vapors may result. In any event, the net result is that the liquids tend to collect in sags and low places where they act as obstructions to the free passage of the gas stream. In some localities where the ground temperature is below the freezing point of water, the effect can be aggravated by the actual freezing of the accumulated liquid.

In addition to deposits of dust, dirt and liquid, it has been found recently that in certain sections of the country, pipe lines may become clogged with compounds known as natural gas hydrates. These hydrates have definite chemical compositions, that is, the ratio of the amount of water to the amount of gas fraction present is always constant. In a methane hydrate there are always seven molecules of water to one molecule of methane. The same ratio holds for ethane, but for carbon dioxide the ratio is only six molecules of water to one of carbon dioxide gas.

E. G. Hammerschmidt of Texoma Natural Gas Company, in an article published in Volume 26 of Industrial and Engineering Chemistry, describes a series of interesting experiments on natural gas hydrates. The article contains a graph showing the relationship between the pressure and melting point of the natural gas hydrates tested. It must be remembered that this curve is merely typical and that each natural gas would have its individual curve, depending upon its composition. For average California gas, it has been found that at a gauge pressure of 400 pounds per square inch the natural gas hydrates form at about 52° F. This is in fair accord with the curve developed by Mr. Hammerschmidt.

The effect of the formation of natural gas hydrates in a pipe line is to materially reduce the effective inside diameter of the gas passage, resulting in excessive pressure losses as in the case of dust or liquid accumulations.

The most serious factor tending to reduce pipe line efficiency is the effect of internal corrosion. Like pipe line efficiency, this subject has only recently come into recognition as an important consideration in natural gas pipe line operation and maintenance. By internal corrosion is meant the deterioration of the interior pipe wall due to chemical action between the steel and the fluids within the pipe.

Studies of internal corrosion have shown that even very small percentages of hydrogen sulphide, oxygen and carbon dioxide in the gas cause very rapid internal corrosion in the presence of free water. Practically all gas produced in California has been found to contain one or more of these impurities, and up to the present time no economical or practical method of removing them has been developed. Since the reaction occurs only in the presence of water, it appears that the corrosive action on the internal surface of the pipe can be eliminated by preventing the condensation of water vapor in the line.

A series of experiments is now under way in the laboratory of the Southern California Gas Company to determine the rate of internal corrosion caused by gases containing various percentages of hydrogen sulphide, oxygen and carbon dioxide. In this study the corrosion is caused by the exposure of steel test specimens to gas atmosphere containing controlled concentrations of hydrogen sulphide, oxygen, carbon dioxide and water. These tests are being conducted at a pressure of several inches of water and a temperature of 70° F. As yet no tests have been run with carbon dioxide but it is planned to do this in the near future.

TABLE 1

Test No.	Percent Saturation	Percent Oxygen	Sulphur Grains/ 100 Cu. Ft.	Loss in Ounces /Sq. Ft./ Year
1	132.0	0.00	00.00	0.304
2	75.3 to 132	5.86	100.00	0.644
3	132.0	5.86	100.00	9.32
4	75.3	5.86	100.00	0.209
5	75.3	5.86	100.00	0.162
6	132.0	0.00	100.00	0.675
7	132.0	5.86	00.00	3.14
8	132.0	21.00	00.00	6.25
9	75.3	21.00	00.00	0.00

Tests 8 and 9 were with air—all others were with natural gas.

While this study is not complete, sufficient tests have been made which show a definite trend as indicated by Table 1.

Bearing in mind that tests such as these are subject to certain experimental error, many of which are additive, and are of such a nature that they tend to exaggerate the computed loss due to corrosion, these data form the basis of the following conclusions.

(1) In the absence of hydrogen sulphide and oxygen, natural gas which is over-saturated is not corrosive to steel at normal temperatures. (Test No. 1.)

(2) Natural gas considerably under-saturated, and containing both hydrogen sulphide and oxygen, is not corrosive to steel, while the same gas carrying free water is very corrosive. (Tests Nos. 3, 4 and 5.)

(3) Natural gas containing hydrogen sulphide, but no oxygen, if over-saturated is very much less corrosive than if the gas also contained oxygen. (Tests Nos. 3 and 6.)

(4) Natural gas containing oxygen, but no hydrogen sulphide, if over-saturated is corrosive. (Test No. 7.)

(5) If natural gas containing hydrogen sulphide and oxygen is alternately over and under-saturated,

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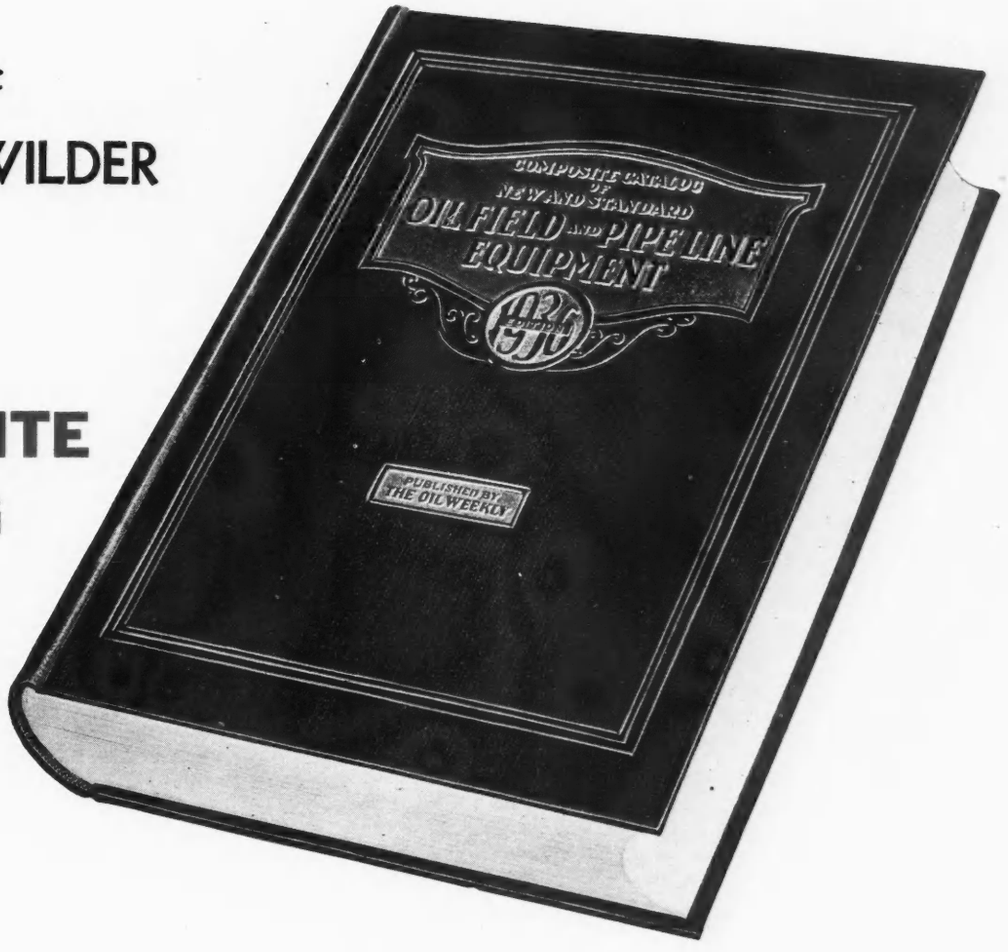

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it is relatively corrosive to steel in proportion to the time of over-saturation. (Tests Nos. 2 and 3.)

(6) Air containing free water is very corrosive to steel, but it is not corrosive if considerably below saturation.

Under Item No. 5 the gas in Test No. 2 was maintained in an under-saturated condition approximately 90 percent of the time, and in an over-saturated condition about 10 percent of the time. Under these conditions the loss of metal in ounces per square foot per year was 0.644. In Test No. 3 the gas was over-saturated 100 percent of the time and showed a loss of 9.32 ounces of metal per square foot per year. The ratio of loss for these two tests was 14.4, whereas the relation of approximate over-saturation time was 10. However, as the time of over-saturation was only an approximate 10 percent, this indicates a reasonable agreement under the conditions.

It has been our experience that under certain conditions, the products of internal corrosion of the pipe metal accumulate on the pipe walls. This reduces the effective inside diameter of the pipe and increases the wall friction. As these products dry out and drop off, they are carried along in the gas stream accumulating in the same locations as dust and dirt from other sources.

Original Performance

The first step in maintaining the original efficiency of a long transmission line is to make a complete and thorough performance test of the line as soon as it is placed in operation. The purpose of such a test is to establish a basis upon which performances checked at subsequent dates can be compared. The importance of obtaining a complete record cannot be overemphasized.

The data should include records of the volume, pressure, temperature and specific gravity of the gas at both ends of the line and at as many intermediate points as possible. It is important that all instruments used in obtaining these data be checked for accuracy. Gauges of the dead weight type are recommended for obtaining pressure data, but if they are not available the pressure gauges used should be checked before and after the required data are recorded. In addition to the above data, ground temperatures at pipe depth should be recorded. If the temperatures are such that condensation of water vapor is likely to occur, provision should be made to keep the line clear of liquid by the installation of suitable drips and bleeders. The actual delivery volumes under the respective pressure and temperature conditions existing at the times the test data are recorded, may be considered as the volumes to be expected under 100 percent efficient operation, assuming, of couse, that the line was properly blown before being placed in operation and that no liquids were permitted to accumulate during the test period.

Maintaining Original Efficiency

As mentioned before under "Factors Tending to Reduce Pipe Line efficiency," deposits of foreign matter are a severe detriment to efficiency and much thought should be given to their elimination.

Where gas is purchased on contract, the stipulation should be made that it is to be reasonably free from dirt, dust, water, hydrogen sulphide, oxygen, carbon dioxide or other injurious impurities. Should the gas available be polluted with dust or liquid, suitable scrubbers should be installed on all gathering lines to adequately protect the transmission system. There are many scrubbers on the market for the removal of dust and liquids from gas streams, but care must be exercised to insure the proper selection as to capacity and efficiency of extraction.

Among the requirements for satisfactory performance are the following desirable characteristics:

(1) The design should be such that it does not create an excessive pressure drop.

(2) The design should be one that embodies a change of direction of flow, or the principle of impact for the removal of small water particles.

(3) The scrubber should be so constructed that it is impossible for the impurities to by-pass the element effecting extraction.

(4) The area at the point of change of flow direction should be such that the velocity of the gas stream is less than that required to carry minute particles of water in suspension.

The following equation may be found useful in checking available liquid separators to ascertain whether or not the design is in accord with the requirements mentioned. The velocity at which a stream of flowing gas will hold minute particles of water in suspension is not definitely known. However, pioneers in the absorption process of gasoline extraction found that if the contacting towers were designed so that the lineal velocity of the gas did not exceed 600 feet per minute, at 30 pounds per square inch gauge pressure, no oil would be carried from the tower in the gas stream. Based on this experience, the maximum allowable lineal gas velocity at any other gauge pressure can be solved by the following equation.

$$V = 600\sqrt{\frac{30 + Po}{P + Po}}$$ in which

V=Maximum permissible lineal gas velocity in feet per minute at gauge pressure P.
Po=Gauge pressure pounds per square inch.
P=Gauge pressure pounds per square inch.

Since the formula is valid for use with a light oil, it appears that velocities obtained by it would be less than that considered critical for water due to the greater density of the latter.

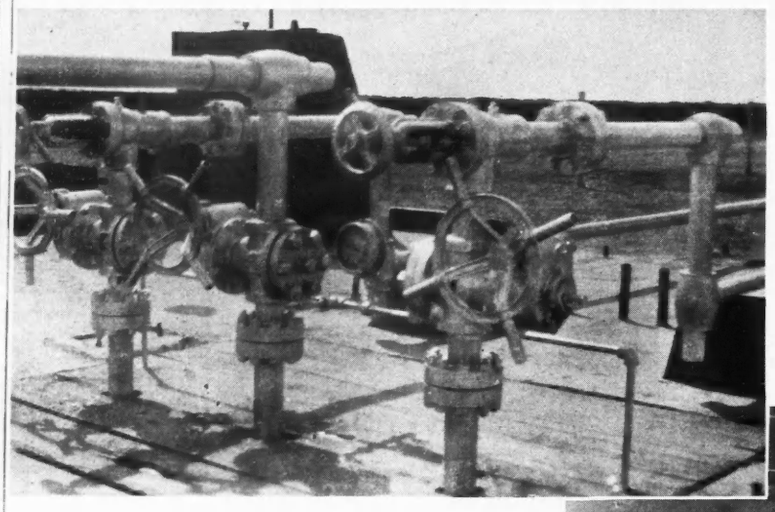
Recent laboratory experiments on a scrubber designed to conform with the computed velocity proved entirely satisfactory. An operating scrubber was then constructed to handle 35,000,000 cubic feet of gas per day at a gauge pressure of 400 pounds per square inch. After the scrubber was installed and placed in operation, a series of glass windows was placed in the discharge line through which observations were made to determine whether the scrubber was performing satisfactorily. The observations were made when the flow volumes were 29,000,000 cubic feet per day and 43,000,000 cubic feet per day, the operating pressure being 400 lbs. gauge in both cases. The corresponding velocities under the pressure conditions were 164 feet per minute and 246 feet per minute. When the scrubber was operating at a lineal gas velocity of 164 feet per minute, the observations revealed that no free water or liquid was passing the scrubber, but when operating at a lineal velocity of 246 feet per minute, large quantities of water and oil were observed being carried into the transmission line by the gas stream. The velocity corresponding to the designed capacity was 198 feet per minute. It will be noted that the velocity com-

NORDSTROM HYPRESEAL

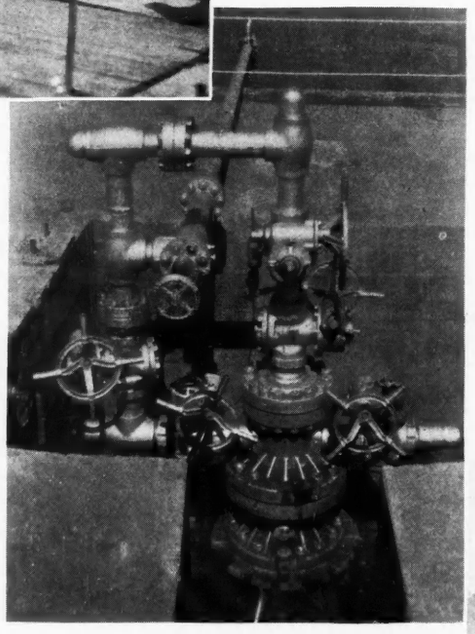
Lubricated Valves

HYPRESEAL TYPE

The Biggest Factor on the Valve Horizon



THE HIGH-PRESSURE VALVES THAT MAKE CHRISTMAS TREES MODERN!

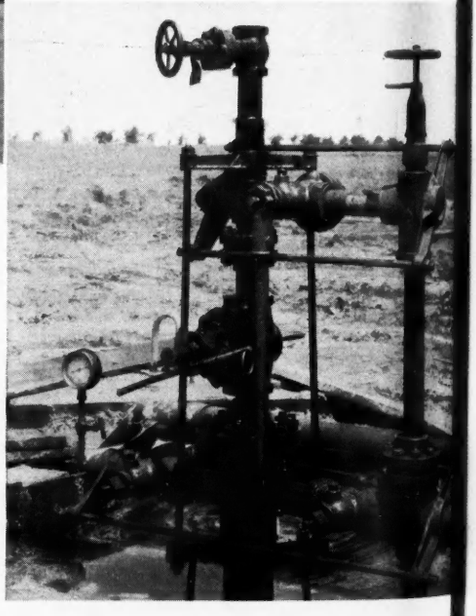


Top photo shows Nordstrom Hypreseal Valves on gas well Christmas tree at Button Willow, Calif. Center photo shows Hypreseals on Christmas tree in the Semi Tropic field, Calif. Lower photo shows type of Christmas tree developed by Nordstrom engineers, widely used in Texas and Oklahoma fields. Embodies round opening valve on tubing head and Hypreseals on flow lines.

ONLY NORDSTROMS MEET EVERY MAJOR VALVE NEED

NORDSTROM HYPRESEAL VALVES

—designed with impervious seal



HERETOFORE all forces within a valve have been taken care of by one exterior means. In ordinary high pressure valves the efforts have been greater than existing materials will withstand. In the perfected Nordstrom Hypreseal Valve two exterior means have been provided, thereby dividing the load taken by each one. The shank which takes a great portion of the load is ***threaded*** into the valve body. These threads carry the load and are positively sealed by the hydraulic pressure of lubricant. Sealing of the plug is effected by means of a steel ball adjusted through an ***impervious*** sealing diaphragm by one single screw. No packing is required. No leakage can exist. No part of the actual plug is at any place exposed to the atmosphere. It is full-floating with respect to line pressures. So rugged has the Hypreseal been made in all details that no field adjustments are normally required. For super valve service, particularly high temperatures and high pressures, the Hypreseal is the solution.

MERCO NORDSTROM VALVE CO. *a subsidiary of* **PITTSBURGH EQUITABLE METER CO.**
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NORDSTROM VALVES

LUBRICATED PLUG

PATENTED "SEALDPORT" LUBRICATION

puted by the formula is in substantial accord with the observed performance.

Scrubbers using the oil bath principle for the removal of dust and dirt have been found to be the most satisfactory. Here again it is important that the exit conditions be such that the scrubber liquid will not be carried away in the gas stream.

Should an analysis of the gas to be transported reveal that corrosive elements are contained therein, precaution should be taken to protect the transmission system from attack. Since the experiments previously referred to, as well as past experiences, indicate that internal corrosion cannot take place except in the presence of water in the liquid state, this source of trouble may be eliminated by partial dehydration of the gas before it enters the transmission system.

The development of means of preventing condensation within a transmission line involves a careful study of the relation between the flowing pressure and temperature of the gas, and its ability to hold water in the vapor state. Natural gas under given pressure and temperature conditions can carry a definite quantity of water in the vapor state. For the purpose of discussion, the following equation is referred to.

$$W = \frac{47.6\ Pv}{Pa}$$ in which

W=Weight of water in pounds per M cubic feet of gas.
Pv=Vapor pressure of water at the gas temperature in pounds per square inch.
Pa=Absolute pressure of the gas in lbs. per square inch.

The above formula is based on the assumption that the gas under investigation follows Boyle's Law. In the case of natural gas, a correction for super-expansibility must be made.

This equation can be used to calculate approximately the weight of water contained per M cubic feet of gas at specific pressures and temperatures.

A gas is said to be saturated when for any given pressure and temperature relationship it can absorb no additional water. If a gas is saturated, and, in addition, is carrying water in the liquid state, it is said to be super-saturated. Furthermore, if a gas is saturated, any cooling will cause some of the water contained in the gas to pass from the vapor to the liquid state. The temperature at which water vapor begins to condense into liquid is said to be the dew point of the gas.

Returning for a moment to the equation, it will be noted that the factors have the following relationship. Since the vapor pressure of a liquid increases with the temperature, an increase in temperature would increase the value of Pv, indicating that a greater amount of water would be required to saturate a given volume of the gas. Should the temperature decrease, Pv would become smaller, indicating that a smaller amount of water would be required to saturate a given volume of gas.

In connection with the effect of a changing operating pressure, it will be noted that as Pa increases the fraction $\frac{Pv}{Pa}$ becomes smaller, indicating that a smaller amount of water vapor can be held by a given volume of the gas. By the same token, a decrease in Pa increases the water vapor capacity of a given volume of the gas.

A knowledge of the foregoing simple statement of facts allows one to make use of ground temperature data to determine whether or not condensation will occur in a pipe line. The procedure is briefly as follows: The amount of water per unit volume of gas at the inlet end of the line is computed by the equation, or in the event the gas at the source is not saturated, it is determined by test. It is only necessary then to solve the equation for the amount of water per unit volume of gas at various known ground temperatures and pressures along the line. If it is found that W is less at any point in the system than at the source of supply, one may be sure that some of the water present as a vapor at the source will condense to the liquid state at that point.

When such a condition is discovered, and if it is known that the gas being handled contains corrosive elements, sufficient water must be extracted at the source to make W at that point less than at any other location in the system. This treatment is known as partial dehydration or dew point control.

It should be made clear that ground temperature data should consist, if possible, of at least one year's continuous record. Any such records showing daily variations of 3 or 4 degrees at a depth of three feet should be viewed with suspicion, and the recording thermometer checked against a maximum and minimum indicating thermometer.

Several methods of dehydrating natural gas have been used with varying degrees of success. In certain locations the average wet bulb depression is such that satisfactory cooling may be obtained by the use of atmospheric cooling towers. Recent developments in cooling tower design and heat exchange equipment have made it possible to obtain a gas temperature within 5° of the wet bulb temperature, when the wet bulb is 60° F. or over, and to within 10° of the wet bulb temperature, when the wet bulb is 40° F. The gas leaving the heat exchanger in an atmospheric cooling tower is fully saturated at the pressure and temperature existing at the outlet of the heat exchanger, but as the gas flows through the line its pressure decreases and, as stated before, its ability to hold moisture increases. Unless ground temperatures are encountered which are lower than the gas temperatures at the site of the cooling tower, no condensation will occur. Temperatures lower than the dew point of the gas might be encountered in uncovered sections of the pipe line, but the effect of these temperatures may be reduced by insulating the exposed sections.

The atmospheric cooling tower, while entirely satisfactory under certain conditions, is dependent upon the wet bulb temperature for the final gas temperature, and during periods when the wet bulb is considerably above the average there might be condensation in the line. This is true due to the fact that while ground temperatures vary to a certain extent with atmospheric conditions at a depth of three feet, there might be but little change for a wide change in wet bulb conditions.

In making studies of ground and wet bulb temperatures, little or no reliance should be placed upon spot readings. A continuous record of at least one year's duration should be used, and then only after the wet bulb record has been checked with United States Weather Bureau wet bulb records covering a period of several years.

The refrigeration process has also been used with a certain degree of success, and theoretically it should be

possible to obtain any reasonable dew point desired using this method.

As a matter of fact, both of these processes of partial dehydration are limited by the formation temperature and pressure of natural gas hydrates which, as stated before, are 52°F. and 400 pounds per square inch respectively for average California gas.

If it develops that adequate control cannot be maintained by the atmospheric cooling or refrigeration systems, an absorption system employing calcium chloride brine can be used to control the dew point. With such a system it is possible to lower the dew point of the gas approximately 25°. With the cooling facilities existing at most plants, a further lowering of the dew point of 25° would probably be sufficient to prevent condensation of any water vapor in the line. A description of such a plant and its cycle of operation is to be found in the December, 1935, issue of *Western Gas*.

Careful analyses of the gas should be made before deciding on the use of a calcium chloride brine system. There is ample evidence that corrosion will not occur in the system if there is no oxygen present in the gas, but we know that calcium chloride plants are subject to some limitations in handling gas of certain chemical characteristics. Oxygen present in the gas in sufficient quantities would probably cause active internal corrosion, hence it is necessary to carefully analyze the gas to be handled before selecting this system of dehydration. Where oxygen is found to be present, even in small quantities, the use of glycerine as the absorbing medium would probably be more desirable.

It is very important that the contactor be of sufficient size so that the velocity of the gas be reduced to such an extent that no calcium chloride brine or glycerine, as the case may be, is carried over into the transmission system. If some of the brine is carried over into the transmission system, it might, if not removed, become diluted by the absorption of water vapor from the flowing gas to the extent that it would cause excessive internal corrosion.

In the case of the loss of glycerine, no damage to the interior of the pipe line would result, but due to its high cost it would greatly increase the operating expense of the plant.

Properly designed scrubbers should be installed on the outlet of the atmospheric cooling and refrigerating systems to protect adequately the transmission system. If the gas to be treated by the absorption process is supersaturated, suitable scrubbers should be installed at the inlet of the plant in order that the absorbing medium will not be diluted unnecessarily.

Experience in Restoring Lost Efficiency

While all that has been said thus far pertains to the factors affecting pipe line efficiency and means of their control, it might be interesting to describe somewhat in detail, a method which was recently employed to clear out the products of internal corrosion from a 20-inch line which showed a drop in flowing efficiency. An examination of the interior of this line showed that for a distance of approximately 17 miles from the high pressure end of the line, the interior was affected by internal corrosion, and the following method was used to remove the products of corrosion.

The pipe was cleared out in 5 mile sections between main line valves, each of which was equipped with 6-inch blow-down connections on either side. A section about 12 feet long was cut from the pipe line approximately midway between the main line valves, and a special fitting for blowing the line installed at this location. This fitting consisted of a piece of 20-inch pipe with a bulkhead 1 inch thick in the center directly below the stack. On either side of the bulkhead a sloping baffle, made of ½-inch plate, extended from the top of the bulkhead to the bottom of the fitting and served to divert the flow up the stack. This type of fitting made it possible to blow from both directions with one installation.

Prior to cleaning operations, the line on either side of the section to be blown was packed with gas to about 350 pounds per square inch. The section to be cleaned was then blown down and the fitting installed after which about 3 sacks of steel shavings and lathe cuttings were forced into the line through the blow-down connection at the main line valve. It is estimated that when these cuttings were forced into the pipe line they occupied 18 cubic feet of space.

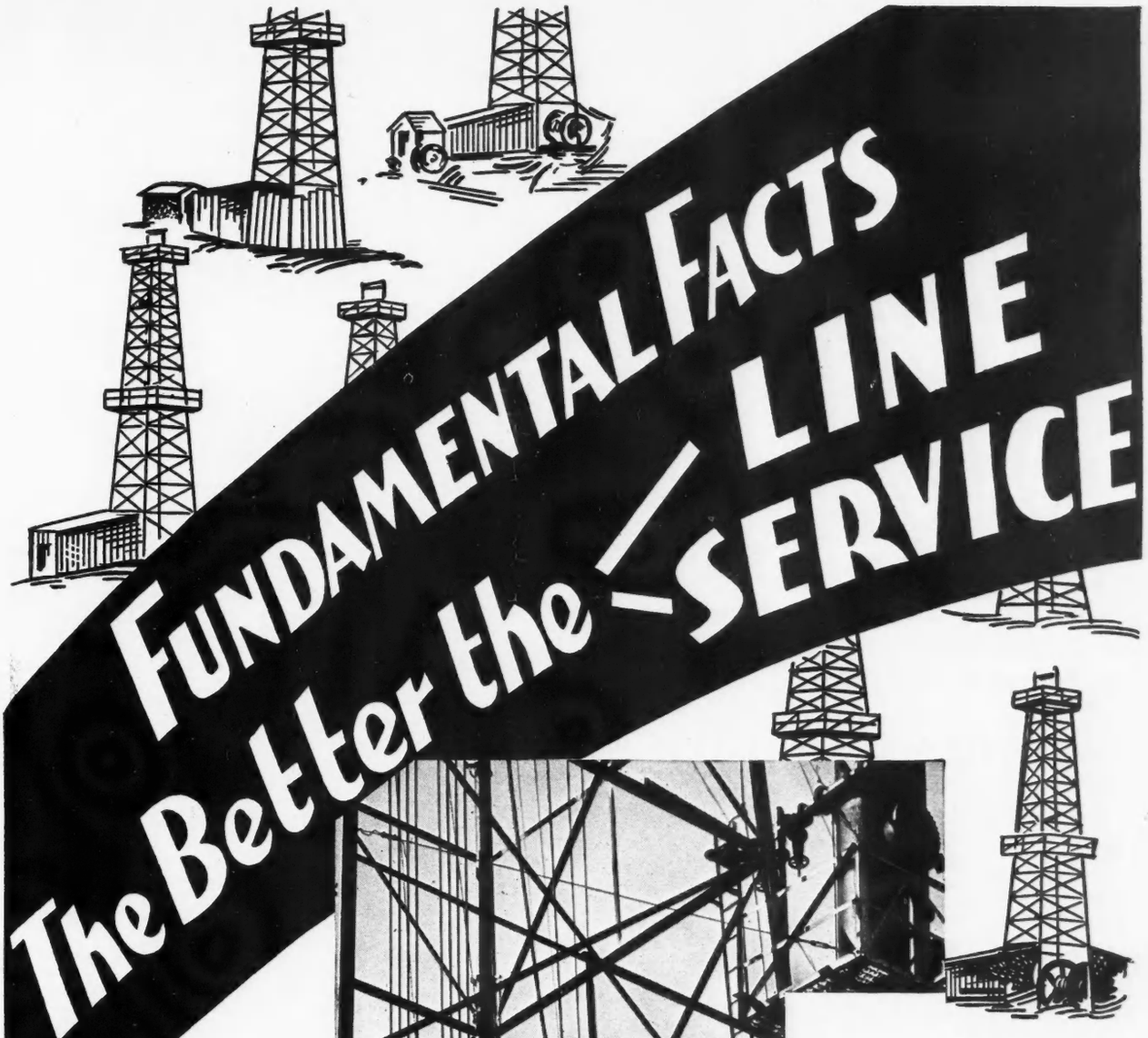
The valve on the blow-down connection at the main line valve was then closed and the main line valve opened as far as possible, forcing the steel cuttings through the line and out through the fitting in the middle of the section. Only steel shavings and lathe cuttings should be used for cutting out the products of corrosion as, due to the high velocities, pieces of steel of any appreciable weight might easily be blown through the walls of the pipe at angles in the line. That this might easily occur is verified by an incident which occurred while cleaning out one of the sections.

A piece of strap iron about ½ inch wide and 15 or 18 inches long, which had been folded over several times, was apparently unnoticed among the steel shavings inserted in the pipe and was therefore blown through the line. From a distance of 150 feet it was clearly heard when it struck the baffle plate of the special fitting. After the blow the fitting was examined and it was found that the baffle plate, which had been welded in the fitting for its entire circumference, had been torn loose from the pipe for about on-half of its circumference and pushed up against the bulkhead. The piece of strap iron was located later and was found to weigh only ¼ of a pound.

It was of interest to note that after the blow very few pieces of the shavings of any length could be found, and these were almost straight. Also, the ground for several hundred feet from the fitting was found to be literally covered by small particles of metal about 5/16-inch long by 3/16-inch wide having a bluish cast indicating the heat that was developed by the friction between the cuttings and the interior wall of the pipe.

After the fitting was removed, the interior of the pipe line was examined as far as possible, and found to be entirely clean of the products of corrosion. The primary purpose of the blow was to remove these products thereby increasing the pipe line efficiency.

Pressure surveys were made before and after the blow by installing recording gauges at various points along the line. The portion of the line cleaned was only about 25 percent of the total length of the line in question, and while the overall flowing efficiency of the line when handling 60,000,000 cubic feet per day was increased about 4 percent, the increase in efficiency in that portion of the line which was blown was about 15 percent. It will be noted that blowing out that portion of the line which showed products of internal corrosion, increased the capacity of the line approximately 2,400,000 cubic feet per day. These figures are cited to show that the efficiency of a line can be improved by cleaning it out, and not for the purpose of showing what percentage of increased efficiency might be expected, as this would depend entirely on the pressures, volumes being handled and the extent of internal corrosion.



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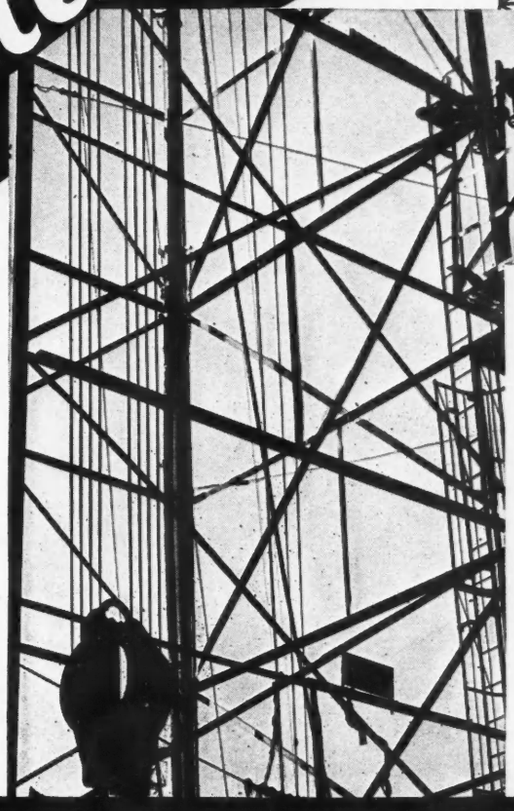

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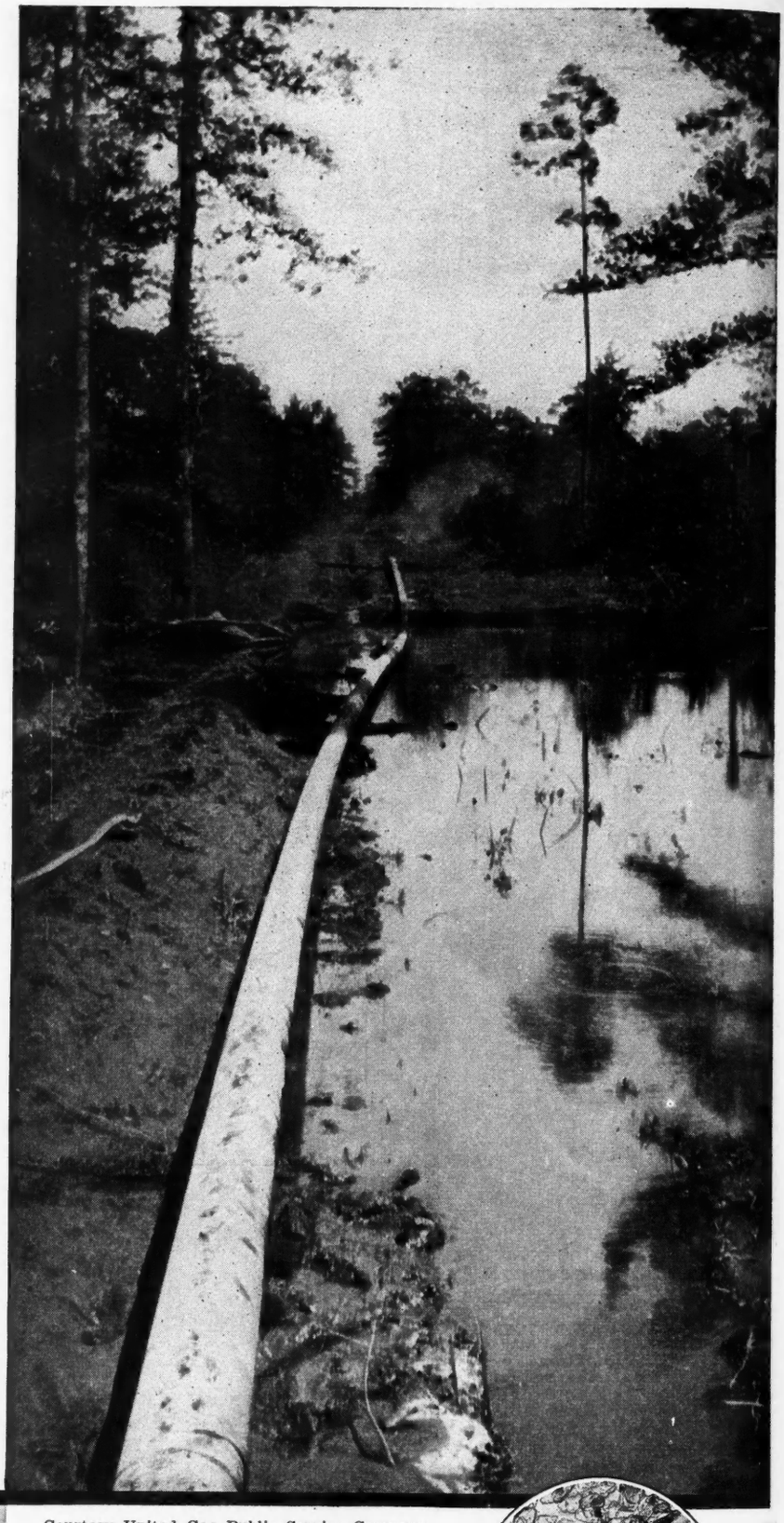

FIELD SERVICE . . .

Carefully trained Barrett field men will gladly work with you, combining their special knowledge and experience with your familiarity with conditions along the right of way.

Courtesy United Gas Public Service Company

Reproduction of the micrograph above shows the interlocking of the flakes of the internal reinforcement used by Barrett. By laminating with the waterproofing agent they give Barrett Pipe Line Enamels unusual toughness and resistance to soil stresses.

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Markets Improve

PRICES TEND TO ADVANCE AS OUTLOOK BECOMES BRIGHTER

THE markets were perceptibly steadier last week, and although prices continued mostly unchanged, they were tending to rise.

While the tank car prices of gasoline at Mid-Continent refineries did not make any advance, retail prices of gasoline were raised by major companies in Kansas; and the early part of the week brought a 10-cent increase in the posting for Michigan crude.

Further expansion of gasoline consumption has been an important factor in strengthening the markets, and another cause for improvement last week was the prospect that crude production will be satisfactorily curbed during July. Late in the week the Texas Railroad Commission issued a new proration order calling for a reduction of over 50,000 barrels in the Texas allowable. There was hope also that this reduction by Texas would encourage other leading states, including Oklahoma and Kansas, to continue adhering closely to the Bureau of Mines recommendations.

Michigan Crude Price Up

The price increase for Michigan was the result of a local situation, but was nevertheless encouraging to producers elsewhere. Effective June 15, Pure Oil Company increased its postings for Michigan crude 10 cents a barrel. The new price in Central Michigan fields is $1.42 a barrel. For the lower gravity crudes, also advanced 10 cents, the new price is $1.26 a barrel. The Michigan crude market has been tight for some time, with some of the independent refiners offering premiums. Some of the smaller plants have been forced to shut down, through scarcity of the raw material, while others have curtailed operations for the same reason.

Retail prices of gasoline, kerosene, and tractor fuel were advanced last week in Kansas by Standard Oil Company (Indiana) and the White Eagle Division of Socony-Vacuum Oil Company.

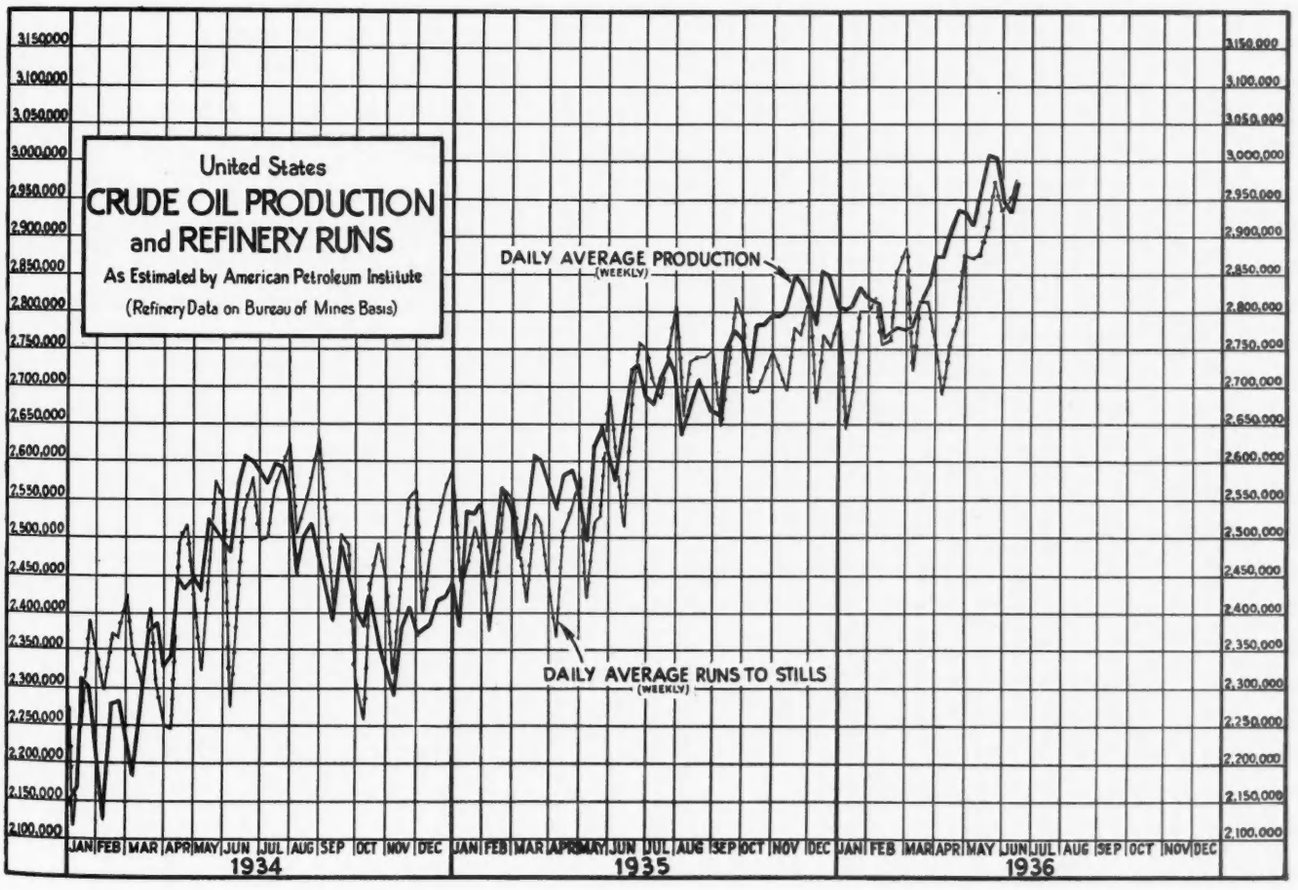
California Unchanged

The markets in California have shown no material change for several weeks. Natural gasoline prices have eased off slightly, due to arrival of supplies from the East Coast, but small refiners still are forced to pay premiums up to 2 cents for spot deliveries. It is noticed that practically all of the smaller refineries are making determined efforts to hold their dealers in line, and only a few cut price signs are in evidence in Southern California, and in those cases only at smaller service stations. In most instances they are selling no-name motor fuel.

Mid-Continent Market

In some districts of the Mid-Continent refiners last week advanced quotations on several grades of gasoline, but found that it was difficult to make sales at the higher prices. But the market was appreciably tighter, with both open market and contract business brisk. There was a further decrease of price shading of low octane gasoline.

Third grade U. S. motor gasoline, 62 octane and below, continued priced generally at 4¾ to 5 cents in the Chicago area and at the refineries in Oklahoma, while it was unchanged also in North Texas at 4¾ to 4⅞ cents and in East



Texas at 4⅝ to 4¾ cents. The 63 to 67 octane grade was 5⅜ to 5⅝ cents in Oklahoma, 5 to 5½ cents in the Chicago market, and 5⅜ to 5½ cents f.o.b. North Texas refineries. U. S. motor gasoline of 68 to 70 octane was 6 to 6⅛ cents a gallon f.o.b. Oklahoma refineries, 5⅝ to 6 cents at Chicago, and 6 cents in North Texas.

Kerosene prices in Oklahoma and North Texas were an eighth cent lower last week than the week before, but they were unchanged in the Chicago market and in East Texas. The new prices f.o.b. Oklahoma refineries were 3¾ to 4 cents a gallon for the 41-43 water white kerosene and 4 to 4¼ cents for the 42-44 water white grade.

East Texas Tank Car Shipments

Week Ending June 14, 1936

PRODUCTS	No. Cars	Estimated Gallons
Gasoline	538	4,346,843
Fuel Oil	206	1,980,215
Casinghead Gasoline	247	2,046,839
Distillate	53	425,716
Gas Oil	34	279,261
Kerosene	15	116,033
Residuum	11	89,052
Naphtha	10	80,813
Topped Crude	2	16,300
Total	1,116	9,381,072
Total Previous Week	1,202	10,153,374
Interstate	437	.....
Coastwise	364	.....
Intrastate	315	.....
Total	1,116	.....

MARKET STRONGER

Group 3 prices higher as crude outlook brightens

TULSA.

THE crude oil market situation in Oklahoma and Kansas had braced sufficiently at the midde of June to warrant hope of holding prices for the summer. The week beginning June 15 brought higher prices on spot gasoline quotations.

Indications are that both Oklahoma and Kansas will hold close to the crude output level, five percent below recommendations of the United States Bureau of Mines, a move taken by conservation commissions of both states late in May when the field output was such that a cut in price was threatening.

In Oklahoma the north extension of the Oklahoma City field will add between 40,000 and 50,000 barrels daily to output by the end of July. This field has another 75 wells to be completed in the area now under development. Potentials on the remaining wells will not average more than 10,000 barrels each. Some of the earlier wells had output as high as 20,000 barrels on potential tests.

Production is based on 4.5 percent of potential flow. This was the figure selected when the Oklahoma Corporation Commission made its move to keep output of the state five percent under the figure recommended by the United States Bureau of Mines. These wells will produce on the basis of potentials at the time of completion until October and November, when it will be necessary to take potentials again.

Fear of a drop in crude oil prices from the viewpoint of producers in Oklahoma and Kansas has its basis on the output of Texas fields. In this section of the Mid-Continent, Texas is charged with failure to keep in step with the move to hold five percent under recommendations of the federal agency to the extent of 80,000 barrels daily. If this condition is continued, there is the possibility that the conservation bodies of Oklahoma and Kansas will write no more orders that call for output below recommendations of the Bureau of Mines.

Third grade gasoline below 62 octane rating was sold during the week from 4¾ cents to 5 cents a gallon. Material with octane rating from 63 to 67 brought 5⅜ cents to 5⅝ cents per gallon. Motor fuel from 68 to 70 octane rating had 6 cents a gallon for its low with some shipments an eighth of a cent higher.

CAR SHIPMENT

List of East Texas cars to go to state officials

WASHINGTON, D. C.

COMPLETION of arrangements whereby a list of tank car shipments from the East Texas field will be furnished daily by the Federal Tender Board at Kilgore to officials engaged in the administration of state gasoline tax laws was announced by the Petroleum Conservation Division of the Interior Department, June 18.

The service will begin July 1 and the daily report will show the tank car number and initials, capacity, contents, shipper, consignee and destination of each shipment.

The reports will be prepared and distributed under the Connally Act and are expected to provide a method for checking possible diversions of tank car shipments and consequent possible gasoline tax evasions.

OIL IS EXCHANGED

San Angelo. — Approximately 3500 barrels of daily production handled by Magnolia Pipe Line Company in the Sayre, Scarborough and Kermit areas, Winkler County, has been diverted along with gathering lines to two other majors for the remainder of the year on a crude exchange arrangement. Humble Pipe Line Company is credited with having taken, effective June 15, about 2000 barrels of this production, and the remaining 1500 barrels is now being handled by Shell Pipe Line Corporation. Controlled production, aggregating about 900 barrels daily, held by Magnolia Petroleum Company in the Sayre field is also involved in the crude swap.

Summary of Wells Completed in the United States Week Ending June 20, 1936

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total Completions 1936	Total Completions this date 1935
Alabama	....	....	....	....	.....	2	3
Arkansas	2	1	....	1	25	42	82
California	21	19	1	1	9,450	501	375
Colorado	....	....	....	....	.....	5	6
Illinois	....	....	....	....	.....	4	8
Indiana	11	2	5	4	55	110	92
Kansas	32	25	1	6	27,396	717	657
Kentucky	....	....	....	....	.....	117	73
Louisiana	19	11	4	4	7,475	495	357
Michigan	16	10	4	2	1,783	354	211
Mississippi	....	....	....	....	.....	2	12
Montana	5	4	....	1	445	59	51
New Mexico	15	14	....	1	34,973	257	133
New York	....	....	....	....	.....	....	....
Ohio	37	7	21	9	81	876	659
Oklahoma	66	44	3	19	195,898	1,296	1,116
Pennsylvania	....	....	....	....	.....	....	70
Texas	232	172	4	56	210,205	5,768	5,663
Utah	....	....	....	....	.....	....	....
West Virginia	20	3	16	1	14	336	240
Wyoming	2	2	....	....	20	24	28
Total this week	478	314	59	105	487,820	10,965	9,837
Total last week	468	325	24	119	636,676	10,488	9,438
Total this year	10,966	7,287	1,063	2,630	10,344,433	....	....

Comparison of Permits Granted for New Wells

STATE	Week Ending June 20	Total this Mo.	Total this Year	Total this Date Last Year	1935 Year Total
Arkansas	...	3	49	16	70
California	20	67	441	255	925
Louisiana	24	66	584	377	846
Kansas	34	89	858	463	1,204
Michigan	17	46	328	231	749
Oklahoma	64	168	1,109	1,031	2,311
Texas	375	1,019	6,888	4,984	10,800
Total	534	1,458	10,257	7,357	16,964

PRODUCTION DOWN

Crude output is lower in most of leading states

UNITED STATES crude oil production last week, ended June 20, averaged 2,952,175 barrels daily. That was 26,900 barrels a day less than in the previous week, but 113,875 barrels a day more than the Bureau of Mines recommendation.

The lower production as compared with the previous week was the result of declines in Oklahoma, Kansas, Louisiana, and California. Texas output was up slightly, and New Mexico showed practically no change.

The outstanding decline was that for Oklahoma, where production dropped off approximately 20,000 barrels, to 546,350 barrels daily, the new rate being about 6000 barrels under the federal allocation. Oklahoma City field was almost wholly responsible for the Oklahoma decrease.

Kansas production last week was down about 3000 barrels at 149,175 barrels daily, and at the new rate was approximately 4000 barrels under the Bureau of Mines recommendation.

Louisiana's output was about 1500 barrels lower in averaging 222,725 barrels daily, with the Gulf Coast section showing a decline that more than offset a slight increase in North Louisiana. The state last week exceeded the federal allocation by about 47,000 barrels daily.

California output last week was off 6000 barrels at 578,000 barrels daily, but it was 42,500 barrels a day above the Bureau of Mines estimate of demand.

New Mexico averaged 73,100 barrels daily last week, or 100 barrels a day less than in the previous week, and was 4800 barrels above its federal allocation.

Texas production last week averaged 1,151,500 barrels daily, or about 4000 barrels a day more than in the previous week, and was 25,800 barrels a day above the Bureau of Mines recommendation.

CUT MONTANA

FOLLOWING the step taken early in June by the British-American Oil Company, through its subsidiary the Toronto Pipeline Company, major purchasers also reduced their postings for crude at Cut Bank and Kevin-Sunburst, Montana's principal fields .

Toronto Pipeline Company cut the price of Cut Bank crude 15 cents per barrel to $1.35 effective June 3. International Pipeline Company followed with a posted gravity scale price for Cut Bank crudes. The scale provides a minimum price of $1.29 per barrel for crude oils below 35 degrees gravity and a maximum of $1.41 per barrel for crude of 40 degrees or above. From 35 degrees at $1.30 to 39.9 degrees, the Texas scale grades up with a 2 cent differential for each degree.

Meanwhile the Kevin-Sunburst crude was cut by International, and Ohio Oil Company to $1.15 per barrel, a reduction of 10 cents.

Reduction of 7½ cents per barrel was also announced by the Toronto Pipeline Company for carrying Cut Bank oil through its line to the British-American refinery at Coutts.

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in June)	ACTUAL PRODUCTION: BARRELS DAILY FOR WEEK ENDING June 20	June 13
TEXAS—			
Texas Panhandle	.....	60,800	62,100
North Texas	.....	58,700	58,800
West Central Texas	.....	25,300	25,400
West Texas	.....	178,900	178,200
East Central Texas	.....	53,100	52,900
*East Texas Field	.....	438,900	437,500
†South Texas	.....	86,400	84,800
†Texas Gulf Coast	.....	249,400	247,600
*Total Texas	1,125,700	1,151,500	1,147,300
OKLAHOMA—			
Oklahoma City	.....	125,725	151,275
Seminole Area	.....	144,975	143,250
Tatums	.....	3,325	3,350
Lucien	.....	12,800	12,950
Fitts	.....	55,700	50,700
Edmond	.....	11,975	12,825
Others	.....	191,850	192,900
Total Oklahoma	552,500	546,350	567,250
KANSAS—			
Ritz-Canton	.....	6,150	6,225
Voshell	.....	2,800	2,850
Nikkel-Hollow	.....	3,800	3,900
Sedgwick	.....	5,250	5,425
Burrton-Haury	.....	11,675	11,625
Lorraine	.....	6,625	7,400
Oxford	.....	6,100	5,200
Others	.....	106,775	109,700
Total Kansas	153,100	149,175	152,325
LOUISIANA—			
North Louisiana	.....	76,925	75,800
Louisiana Gulf Coast	.....	145,800	148,400
Total Louisiana	175,700	222,725	224,200
ARKANSAS	31,800	29,525	29,600
CALIFORNIA—			
Long Beach	.....	68,000	68,000
Santa Fe Springs	.....	43,500	44,000
Huntington Beach	.....	36,500	37,500
Dominguez	.....	27,000	26,000
Inglewood	.....	11,500	12,500
Ventura Avenue	.....	32,500	34,500
Seal Beach	.....	7,000	7,500
Midway-Sunset	.....	63,000	61,000
Elwood	.....	12,000	12,500
Kettleman Hills	.....	77,000	78,000
Mountain View	.....	28,000	28,000
Playa del Rey	.....	13,500	13,500
Others	.....	158,500	161,000
Total California	535,500	578,000	584,000
MOUNTAIN STATES—			
Wyoming	37,800	37,400	36,500
Montana	13,000	16,800	17,400
Colorado	4,700	4,600	4,600
Total Rocky Mountain States	55,500	58,800	58,500
NEW MEXICO	68,300	73,100	73,200
EASTERN STATES	103,200	110,200	110,100
MICHIGAN	37,000	32,800	32,600
*Total United States	2,838,300	2,952,175	2,979,075
*Surreptitiously produced oil in East Texas, not included in above figures, estimated at	.....	15,000	15,000
Grand Total, including surreptitious production	.....	2,967,175	2,994,075

† Coastal Section of South Texas is included with Texas Gulf Coast.

Crude Runs to Stills; Stocks of Finished and Unfinished Gasoline and Gas and Fuel Oil, and Cracked Gasoline Production, Week Ended June 13, 1936

(Figures in thousands of barrels of 42 gallons each, as reported to American Petroleum Institute)

DISTRICT	Daily Refining Capacity			Crude Runs to Stills		Stocks of Finished and Unfinished Gasoline				Stocks of Gas and Fuel Oil			Daily Charging Capacity of Cracking Units			Cracked Gasoline Production
						Finished										
	Potential Rate	Reporting		Daily Average	% Operated	At Refineries	Term. Trans. Pipe Lines	Unfinished in Naphtha Distillates	Total Finished and Unfinished	Gas, Oil & Distillates	Residual Fuel Oil	Total	Potential Rate	Reporting		Daily Average
		Total	%											Total	%	
East Coast	612	612	100.0	536	87.6	7,069	11,663	967	19,699	4,104	5,051	9,155	534	534	100.0	107
Appalachian	154	146	94.8	101	69.2	1,286	1,046	260	2,592	277	189	466	79	78	98.7	22
Ind., Ill., Ky	442	424	95.9	420	99.1	6,577	2,751	813	10,141	1,815	2,037	3,852	349	348	99.7	136
Okla., Kans., Mo	453	384	84.8	293	76.3	4,207	2,188	604	6,999	693	2,506	3,199	256	228	89.1	68
Inland Texas	330	160	48.5	107	66.9	1,200	126	202	1,528	323	1,426	1,749	148	105	70.9	27
Texas Gulf	680	658	96.8	608	92.4	5,510	307	2,070	7,887	3,841	3,635	7,476	399	393	78.5	149
Louisiana Gulf	169	163	96.4	114	69.9	818	504	278	1,600	1,048	999	2,047	77	74	96.1	27
North La.,—Ark	80	72	90.0	44	61.1	202	95	91	388	63	356	419	46	44	95.7	9
Rocky Mountain	97	60	61.9	49	81.7	1,364	.....	96	1,460	137	602	739	46	39	84.8	14
California	852	789	92.6	514	65.1	10,014	2,438	1,190	13,642	.....	.....	71,956	280	280	100.0	61
Reported	.....	3,468	89.6	2,786	80.3	38,247	21,118	6,571	65,936	.....	.....	101,058	.....	2,123	95.9	620
Estimated Unreported	.....	401	.....	189	.....	3,033	1,425	274	4,732	.....	.....	2,941	.....	91	.....	40
*Estimated Total U. S. June 13, 1936	3,869	3,869	.....	2,975	.....	41,280	22,543	6,845	70,668	.....	.....	103,999	2,214	2,214	.....	660
*Estimated Total U. S. June 6, 1936	3,869	3,869	.....	2,950	.....	40,947	22,741	6,951	70,639	.....	.....	102,904	2,214	2,214	.....	655
U .S. B. of M., June, 1935	.....	.....	.....	2,724	.....	†32,499	†20,642	†6,366	†59,507	.....	.....	†103,674	.....	.....	.....	586

* Bureau of Mines basis currently estimated. †As of June 30, 1935.

CONTRACTS LET

Sheldon to Valley Center line to cost $4,500,000

Tulsa.—Texas-Empire Pipe Line Company has awarded final contracts on a $4,500,000 expansion program of the Sheldon, Missouri-Virginia, Illinois trunk line, and extension from Sheldon to Valley Center, Kansas. The company is to provide pipe and material. Kelly-Dempsey Company of Tulsa is laying loop one, Williams Brothers Construction Company contracted for loops four, five, eight and nine, Oklahoma Contracting Company of Dallas acquired 58 miles of the extension, Truman-Smith Construction Company obtained the remainder of the extension and loops six and seven. The laying of loops two and three has been awarded Jones and Brooks, Incorporated, Oklahoma City.

PLAN TALCO LINE

Tyler.—Humble Pipe Line Company is reported to have started surveying right-of-way for a trunk line to extend from the Talco field to its East Texas field booster station near Longview where connection can be made to the double 10-inch system that delivers East Texas and Van crudes to Baton Rouge, Louisiana. A line from Talco to Longview station would require about 63 miles of pipe, and in all probabilities 10-inch diameter would be used as Humble Oil & Refining Company is the largest lease owner in the field. Reports do not indicate whether Humble Pipe Line Company will proceed at once with the construction of a line to Talco, but a direct outlet will probably be provided within a few months to support the large drilling campaign in store for Humble Oil & Refining Company in protecting its leases from offsets. Pending the completion of a line, Humble Oil & Refining Company is erecting two 55,000-barrel steel tanks in the Talco field to accumulate crude stocks and suspend current tank car shipments to its Baytown refinery.

TEST IS PLANNED

Continental purchases oil rights in Quinton area

Tulsa. — Continental Oil Company, through a deal made with Midwestern Oil & Gas Company, subsidiary of Oklahoma Natural Gas Company, has obtained all oil rights in Quinton gas district of Pittsburgh and Haskell Counties. Oklahoma Natural Gas Company has retained all gas rights under the acreage involved.

The purchasing company is working a seismograph crew in the area and expects to make a location within 90 days. A test in this region will be the first to the deeper horizons in this part of the state. It may go below 7000 feet. The Wilcox is to be the major objective.

Quinton sector first produced gas in 1916. As the field was extended, additional outlets were obtained, the gas being produced from the Hartsorne sand. The area is more than 30 miles in length, extending generally east and west, and is frequently referred to as the Kinta Anticline. Gas production has been proven over the entire sector.

LEASES PURCHASED

Phillips buys interest in Sunray properties

Tulsa.—Frank Phillips, president of the Phillips Petroleum Company, announced the purchase of a one-half interest in Sunray Oil Company's leases on state lands and on the Harn tract of North Oklahoma City field. Terms of the transaction were not announced. This merger of interests in the state land gives Phillips Petroleum Company an interest in approximately 100 wells, either completed, drilling, or located. The state lease of the Sunray Oil Company will be limited to 11 or 12 locations. Sunray Oil Company retained operating control of the tracts.

30-MILE LINE

Wichita Falls, Texas.—Preliminary survey has been made by The Texas Pipe Line Company for the construction of a 30-mile six-inch natural gas line from the Johnson field, western Foard County, to deliver residue gas from The Texas Company's natural gasoline plant to the West Texas Utilities Company's power generating plant near Quanah, Texas.

CRUDE OIL PRICE QUOTATIONS

(Figures Represent Basic or Flat Prices—Revised to June 19, 1936.)

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Oklahoma-Kansas	28—$0.94	2¢	40—$1.18	1- 9-36
N. and N.-C. Texas	28— .84	2¢	40— 1.08	1- 9-36
Texas Panhandle				
Gray County	34— .86	2¢	40— .98	1- 9-36
Carson-Hutchinson	34— .81	2¢	40— .93	1- 9-36
West Texas				
Ector, Pecos, W'kler Crane, Upton, Howard and Glasscock	29— .76	2¢	36— .90	1-14-36
West Central Texas	28— .84	2¢	40— 1.08	1- 9-36
East Central Texas	28— .91	2¢	40— 1.15	1- 9-36
East Texas	*1.15			1- 9-36
Talco	* .60			4-15-36
Texas Gulf Coast				
Anahuac-Dickinson	30— 1.04	2¢	40— 1.24	1- 9-36
Conroe	35— 1.24	2¢	40— 1.34	1- 9-36
Tomball	*1.30			1- 9-36
Cleveland	*1.00			1-11-34
†Goose Creek, Hull Liberty, Orange, Pierce Junction, Moss Bluff, Raccoon Bend, Sour Lake, Spindletop, Sugarland, West Columbia, Humble, Rabbs Ridge	Below 17— .88	2¢	34— 1.22	1- 9-36
South and S. W. Texas	Below			
Refugio (Light)	17— .88	2¢	34— 1.22	1- 9-36
Refugio (Heavy)	*.90			1- 9-36
Saxet	*.90			1- 9-36
Mirando	*.85			1- 9-36
Pettus	*1.25			1- 9-36
Salt Flat	*.97			1-14-36
Darst Creek	*.97			1-14-36
Port Lavaca	*.97			
Plymouth	*.90			12-17-35
Arkansas				
El Dorado (Light) and Rainbow	25— .78	2¢	40— 1.10	1-10-36
El Dorado East Field and Smackover	*.75			1-10-36

* All gravities—flat rate.
† Gulf Coast prices as posted by Humble Oil & Refining Company.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
North Louisiana	25—$0.78	2¢	40—$1.10	1-10-36
Urania	*.97			1-10-36
South Louisiana	Below			
Lockport	19— .92	2¢	34— 1.22	1- 9-36
Iowa, Cameron Mds.	Below 19— .82	2¢	34— 1.12	1- 9-36
Rocky Mountain States				
Salt Creek	29— .94	2¢	40— 1.18	1-10-36
Elk Basin	*1.28			1- 9-36
Grass Creek (Light)	*1.28			1- 9-36
Grass Creek (Heavy)	*.58			1- 9-36
Big Muddy	*1.11			1- 9-36
Rock Creek	*1.12			1- 9-36
Sunburst	*1.15			6- 5-36
Lance Creek	*.90			1- 9-36
Osage	*1.08			
Cat Creek	*1.07			8-25-33
Cut Bank	*1.35			6- 3-36
Pondera	*1.05			9-29-33
Hog Back, N. M.	*1.00			9- 8-33
Lea County, N. M.	*.75			9-29-33
Mid-West States				
Lima	*1.25			1-10-36
Illinois	*1.23			1- 9-36
Princeton	*1.23			1- 9-36
Western Kentucky	*1.23			1- 9-36
Pennsylvania				
Bradford	*2.45			1-13-36
Sw. Pa. Pipe Line	*2.17			1-13-36
Eureka Pipe Line	*2.12			1-13-36
Buckeye Pipe Line	*1.97			1-13-36
Corning Grade	*1.42			1-13-36
Michigan				
Central Michigan	*1.42			6-15-36
Muskegon	*.70–1.00			12-31-32
Canada				
Petrolia	*2.10			9- 9-33
Oil Springs	*2.17			9- 9-33

* All gravities—flat rate.
‡ Average price, all oil sales being to small refineries.

MAJOR PRICE CHANGES

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Cut °4
September 6, 1935	Up 5	.....	.....
October 29, 1935	Up 15	.....	.....
November 1, 1935	.....	.....	Up °28
November 18, 1935	Up 15	.....	.....
December 6, 1935	.....	.....	Up °9
January 9, 1936	.....	Up 10	.....
January 13, 1936	Up 15	.....	.....
February 26, 1936	.....	.....	Up '5

CRUDE PRODUCTION TAXES

Oklahoma—Five percent of gross value less royalty interest.

Texas—Two cents or 2 percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and ⅜ of 1c per barrel.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

* All gravities—flat rate.
° Signal Hill 26 gravity.
' Seal Beach 26 gravity.

CALIFORNIA OIL PRICES

(All gravities above those quoted take highest prices of that field. Effective February 26, 1936)

Gravity	Signal Hill	ea Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Elwood Terrace	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Fe Springs	New Hall McKittrick Kern River Round Mountain	Mountain View	Midway-Sunset Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$.80	$.79	$.78	$.79	$.80	$.76	....	....	$.80	$.76	$.76	$.77	$.78	.....	$.70	....	$.70	$.70	$.70	....
15-15.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
16-16.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
17-17.9	.80	.79	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
18-18.9	.80	.79	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
19-19.9	.82	.79	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	.....	.70	$.70	.74	.74	.71	$.70
20-20.9	.85	.79	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	.....	.....	.70	.78	.78	.72	.70
21-21.9	.88	.79	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	.....	.73	.82	.82	.74	.70
22-22.9	.92	.82	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	.....	.77	.87	.86	.78	.72
23-23.9	.95	.86	.96	.99	1.02	.96	$.84	....	.96	.88	.93	.82	.92	.78	.....	.80	.92	.90	.82	.76
24-24.9	.99	.91	1.00	1.02	1.06	.99	.88	....	.99	.91	.96	.85	.96	.82	.....	.84	.97	.94	.86	.79
25-25.9	1.03	.95	1.03	1.05	1.11	1.03	.93	....	1.02	.95	....	.89	.99	.86	.....	.88	1.01	.98	.90	.83
26-26.9	1.06	1.00	1.07	1.09	1.16	1.06	.98	....	1.05	.98	....	.92	1.03	.90	.....	.91	1.06	1.02	....	....
27-27.9	1.10	1.05	1.11	1.12	....	1.10	1.03	....	....	1.02	....	.96	1.06	.95	.....	.95	1.10	1.06	....	....
28-28.9	1.14	1.10	1.14	1.15	....	1.14	1.07	....	....	1.06	....	.99	1.10	.99	.....	.99	1.15	1.10	....	....
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	....	....	1.09	....	1.03	1.14	1.03	.....	1.02	1.20	1.14	....	....
30-30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17	F.O.B.	....	....	....	1.07	1.17	1.08	.....	1.06	1.25	1.18	....	....
31-31.9	....	....	....	1.24	Line	1.24	1.22	Ship	Kettleman Hills			1.11	1.21	1.12	.....	1.09	1.29	....	....	....
32-32.9	....	....	....	1.27	....	1.27	1.27	....				1.14	1.25	1.16	.....	1.13	1.34	....	....	....
33-33.9	....	....	....	....	....	....	1.32	$1.28		1.19		1.18	1.28	1.20	.....	1.17	1.38	....	....	....
34-34.9	....	....	....	....	....	....	1.37	1.32	....	1.23	....	1.22	1.32	1.25	.....	1.20	.....	....	....	....
35-35.9	....	....	....	....	....	....	1.42	1.35	....	1.27	....	1.25	....	1.29	.....	....	.....	....	....	....
36-36.9	....	....	....	....	....	....	1.46	1.39	....	1.31	....	1.29	....	1.33	.....	....	.....	....	....	....
37-37.9	....	....	....	....	....	....	1.51	1.43	....	1.35	....	1.32	....	1.37	.....	....	.....	....	....	....
38-38.9	....	....	....	....	....	....	1.56	....	....	1.39	....	1.36	....	1.42	.....	....	.....	....	....	....
39-39.9	....	....	....	....	....	....	1.61	....	....	1.43	....	1.40	....	.....	.....	....	.....	....	....	....
40-40.9	....	....	....	....	....	....	1.66	....	....	....	....	1.43	....	.....	.....	....	.....	....	....	....

Edited by
WM. V. GROSS, Associate Editor

Austria's Future

SMALL FIELDS AND MODERATE SIZED RESERVES POSSIBLE

By W. PETRASCHECK, Professor of Economic Geology,
Mining University of Leoben

AFTER drilling some 39 tests with an aggregate footage about 15,000 meters, approximately 49,350 feet, without commercial success, Austria's attempts to develop commercial production, which began in 1900, were rewarded late in 1932. During the same season commercial gas production was developed in the southern extreme of the city limits of Vienna and commercial oil production was encountered 40 kilometers north of Vienna. A year later sufficient time had elapsed to rank both areas as commercial propositions and not as short-lived freaks.

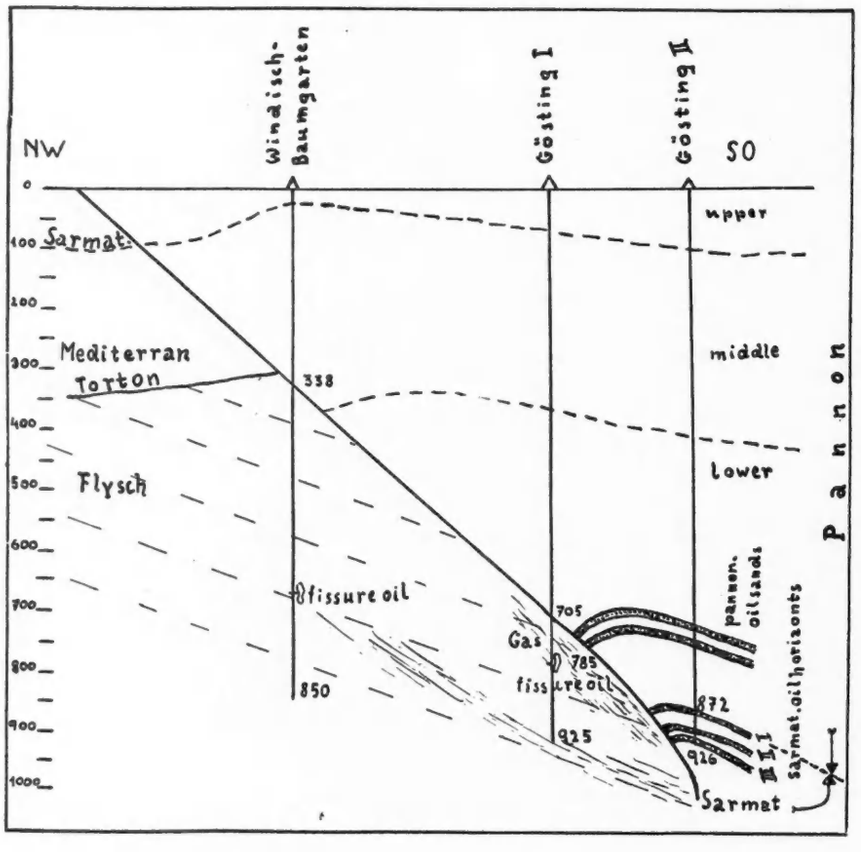
Austria, a major portion of which is mountainous, is bounded on the north by Czechoslovakia, on the west by Germany and Switzerland, on the south by Italy and Yugoslavia, and on the east by Hungary and Czechoslovakia. Most of the boundary line of the nation passes through mountainous country.

From the oil and gas geologist's point of view, the only areas holding commercial possibilities, in the light of present geologic knowledge, are those associated with the Tertiary marine basins at the foot of the Alps. As a general rule this will hold true, notwithstanding the small oil showings known to exist here and there within the Alps and the thin layers of oil shale lying in the Triassic limestone of Tyrol which have been retorted for medicinal purposes for many years, notably by Ichthyol Gesellschaft Cordes, Hermani and Company of Hamburg. Also slight, commercially insignificant seepages in the lignite bearing fresh water beds of the Alps have been observed, but these can be passed up with brief mention in studying Austria's future as an oil producing nation. The Kalkalpen, powerful "rockies," built up by several thrust folds of Triassic and Jurassic limestones, thousands of meters thick, occasionally have been found to have very small seepages. In the past few years one of these Kalkalpen seepages was exploited with a test well at Gaming, but it was abandoned as a dry hole.

Austrian Flysch

As with the Triassic limestone of the Tyrol, the lignite bearing beds and the Kalkalpen, possibilities of developing commercial oil production in the northern zone of the Alps, the Flysch zone, are not very attractive if we are to rely on available data. The Austrian Flysch, i.e., the northern zone of the Alps, is built up of intensely folded sandstones and shales of Eocene, Oligocene and Cretaceous ages. It extends out of Austria through Czechoslovakia into the Carpathians and into the prolific oil fields of Poland. However, the facies of the Austrian Flysch are remarkably different from the rocks of the Polish oil fields. Indeed, up to the present not more than negligible traces of light oil, with a paraffin base, have been found in the Austrian Flysch. The oil, pumped from cretacic Flysch at Zistersdorf field, is believed with good reason to be coming from contiguous Miocene sand. In conclusion, remembering how many dry holes have been drilled into the Flysch of western Poland and of Czechoslovakia, one is justified in having an opinion that in Austria and in Bavaria potentialities of the Flysch for contributing reservoirs of crude petroleum today undiscovered are exceedingly limited. This opinion is strengthened by the fact that the bituminous shales and overthrusted Miocene salt formations found in Poland and in Romania are lacking in Austria and Bavaria.

As a consequence of the generality of the above condition, there is within the



Section of the producing dome of Zistersdorf
—Compiled by K. Friedl

Alps only one small Miocene basin worthy of mention. That is the Lavant Valley in Carinthia, where a small oil seepage has been observed. Geology of the Lavant Valley area presents a more pleasing, though not conclusively encouraging, aspect than that of the Flysch zone, as the marine and fresh water deposits are alternating and the strata are slightly folded.

Only the great Tertiary basins in the foreland of the Alps are worthy of attention from the angle of justification of exploratory drilling. The oil fields in this region have been classified by Zuber (Bulletin of the American Association of Petroleum Geologists, Vol. 18), as belonging to the Mediterranean type, a type which Zuber calls poor.

The geologist distinguishes on the outskirts of the Alps three great basins with Miocene marine deposits. They are the Alpine Vienna Basin, the Outer-Alpine Basin, and the Tertiary Bay of Graz.

Alpine Vienna Basin

Of the three great basins, the Alpine Vienna Basin is perhaps the best known, due obviously to the fact that the productive oil and gas fields of Austria and Czechoslovakia are located in it. It is called the Alpine Basin because it is an actual fault basin, broken down amidst the link between the Alps and the Carpathians. The stratigraphic scheme is shown in the following arrangement:

	So-called "Paludinen Tegelsande," sand gravel, clay. Fresh water deposits. 400 meters.
Pliocene	Congeria Tegel (*), clay of Pannonian age, very poor in sand. Brackish. Thickness up to 800 meters.
Upper Miocene	Sarmation, sand and clay, brackish. Oil-bearing. Up to 400 meters in thickness.
	Tortonian. Tegel, poor in sand, marine deposits. Up to 800 meters in thickness. Oil-bearing at Goding (Czechoslovakia), gas-bearing at Oberlaa.
Middle Miocene	Helvetian (Grund-formation partim), schistose Tegel*, sand and gravel. Marine deposits. Thickness up to 400 meters.

* Tegel is an Austrian colloquialism for plastic, clay-like blue marl.

The inner part of the flat Alpine Vienna basin is slightly folded into two types of domes: larger and smaller. The basin is, moreover, broken by great faults, and some of the domes, for that matter, have small faults also.

Zistersdorf

While it has been known for many years that these domes were capable of gas and/or oil production in the Czechoslovakian portion of the basin, proof that they may be oil or gas bearing in Austria also is a fairly recent contribution to knowledge concerning subsurface possibilities in this nation. As a matter of fact, Zistersdorf, which today yields all Austria's crude petroleum, is the only commercially productive dome in Austria.

In the case of Zistersdorf a great fault divides the dome into two unequal parts. The western part is open for about eight kilometers. The Sarmatian, see the stratigraphic scheme, which normally would be expected to furnish a reservoir, has been eroded. None of the tests drilled in the eroded sector of the fields had proven productive up to February 20, 1936. The most encouraging indication obtained from any of them came in the form of modest blowouts of oil or gas which ceased almost instantaneously.

It is possible, though not likely in consideration of past experience, that the well being drilled today on the upthrown part of the dome at Zistersdorf by Engineer Musil of Vienna may contradict previous history. His well has drilled past 850 meters, approximately 2796.5 feet, in the Helvetian marl and has encountered so far only small showings of gas.

Now the bedrock of the Younger Tertiary (Miocene) formation of the Zistersdorf dome is "cretacic" Flysch. It was penetrated by those wells drilled on the eastern flank on the downthrow part of the dome that pierced the fault. This fault has an inclination of 50 degrees, to the east.

It was within these Flysch beds that the first fissure oil was encountered in Austria at Windisch-Baumgarten in a test well drilled by Raky Danubia Gewerkschaft. The well was not a commercial success.

Later the same operator (Anton Raky) drilled the more successful Gosting 1. Gosting 1 initially had a very small output at 785 meters depth, but when later deepened to 925 meters (about 3034 feet), and worked over, it yielded about one carload of oil per day, or roughly 70 barrels. There is no doubt that this is secondary oil, coming from the Sarmatic sands of the eastern block across the fault.

As a matter of fact, the only economically producing field in Austria today is the one located on this particular eastern, downthrow block. While the length of same is not known, it is probably not so long as the eroded dome. Moreover, geological data in hand seems to indicate the field is very narrow.

It was also in the eastern part of Zistersdorf field that Gosting 2 logged a third Sarmatic sand at 918 meters (2983.5 feet), and cemented 6¼-inch casing at that depth, completing the well on the pump for about 3½ carloads, or 245 barrels, per day initially. At the age of 1½ years, Gosting 2 was making seven barrels of water to each 10 barrels of oil, production of oil proper having declined to around 10 tons, or 70 barrels, per day. The oil is asphalt base and has a specific gravity of 0.9398. It is suitable for the manufacture of lubricants and is very similar to oil produced in the neighboring fields of Czechoslovakia.

Gosting 4 was spudded on a location within striking distance, figuratively speaking, of Gosting 1, the discovery well. It was carried down to top the third Sarmatic sand at 947 meters, and then penetrated this formation for an additional depth of 40 meters, obtaining only water when subjected to a production test.

Directional drilling was employed from the derrick floor of Gosting 4, the bit being directed toward Gosting 2, with the result that the new hole, named Gosting 4A, was completed for an initial output of two carloads, 140 barrels, of oil per day.

Gosting 2, 4 and 4-A are now the property of Erdolproduktions Gesellschaft, a concern with headquarters in Vienna. But it appears development of Zistersdorf will also be shared in by Roholgewinnungs Gesellschaft, a subsidiary of Vacuum and Shell interests, it is reported, organized in Vienna late in 1935. This new organization is now engaged in exploratory drilling between Gosting and Windisch Baumgarten.

Other wells in the eastern part of Zistersdorf are closely watching progress of the Neusiedel test of Naphtha Produktions Gesellschaft. While this well appeared to have encountered nothing of commercial importance down to 1073 meters, any important showings, much less completion as a producer, might precipitate considerable competitive drilling. There is reason to believe, in this connection, that new sands may be found at greater depths in Zistersdorf, and the present price of 1000 Austrian shillings per carload of oil locally warrants deeper drilling. If we may assume a probable length of three kilometers for the field, a long, narrow row of profitable wells may be expected to be completed here.

Oberlaa

Next in importance to Zistersdorf among Austrian fields is Oberlaa, a dome near the city limits of Vienna. Here also is a zone of great faults, some geologists being of the opinion that these faults continue to and are in part the same as those of Zistersdorf.

A summary of early development, or exploration, at Oberlaa includes an old well drilled for lignite at Leopoldsdorf, near Oberlaa, which encountered considerable gas pressure. Then money from the United States of America entered the story of Oberlaa's development when Wiener Erdol Gesellschaft drilled and abandoned a dry hole at 1100 meters. This latter test encountered surprisingly few bodies of sand and only the faintest traces of gas. More recently another test well on the eastern side of the field was drilled without success.

The gas field of Oberlaa is on the western and uplifted block of the fault. The structure is slightly domed, somewhat broken, and extremely small.

European Gas and Electric Company, reputed locally to be an affiliate of Standard Oil Company of New Jersey, took the lead in development work at Oberlaa, which included nine wells within an area 1500 meters long and 1200 meters wide. Only two of these were producers. Two of these tests produced gas from Oberlaa sand of Tortonian age at 250-260 meters. They lived one year, producing in all about 20 million cubic meters of gas before exhausting the field. This gas, incidentally, analyzed 95 percent methane. It was piped 5½ kilometers to the electric works in Vienna and used for steam boilers. Later on, Vacuum Oil Company drilled a dry hole in the field to a depth of 500 meters, satisfying itself as to the depth at which Triassic bed rock could be expected.

From exploratory drilling done thus far a certain amount of knowledge concerning subsurface conditions not predictable from preliminary geologizing has been obtained. We now know that small faults, invisible on the surface, characterize the underground conditions, and that the sands are exceedingly lensed and irregular, grading rapidly into marl. Hence, any production found would be highly spotted. Geophysical work carried out fairly recently in Oberlaa by European Gas and Electric Company did not result in resumption of drilling activities by that operator.

Schwadorf Dome

To Hugo Bockh goes credit for first observing and calling attention to the geological society of the largest dome in the Vienna basin: that of Schwadorf, east of Vienna. Schwadorf dome, easily recognized from the surface, was roughly outlined by gravimetric work under direction of Schumann in 1923. European Gas and Electric Company followed the gravimetric work with a geophysical exploration campaign under its own crews, picking a location near Enzersdorf for the first drill test. The well encountered a strong showing of gas in Sarmatic sand at 698 meters at a time when a substantial portion of the hole was uncased. The

Enzersdorf wildcat was out of control for several days, ejecting considerable sand. As a result of this blowout, the derrick was ruined and the hole abandoned. The operators, however, moved to a nearby location and spudded a second test which, at this writing, has exceeded 1400 meters (4606 feet) and logged several additional sands. The gas sand causing the blowout in the original test of the company was successfully mudded off. However, the well found nothing indicative of commercial oil production between 698 meters and the 1400-meter level, and abandonment of the project is anticipated.

Incidentally, European Gas and Electric Company drilled another wildcat on the Wolkersdorf dome north of Vienna, going to a depth of around 500 meters before abandoning the project.

It is probable geologists will develop additional domes in the Vienna basin, but their work is handicapped by lack of authentic maps of the region around Vienna, and in the matter of accumulating correct maps the Austrian geologists thus far seem to give first choice to the mapping of the Alps. It is admitted that further geophysical exploration and shallow test holes are essential for developing structures in Austria. In this latter connection, there are known indications of the existence of more domes north and south of the Danube River than those listed. It may be these areas will be subjected to gravimetric work as that type of geophysical work seems to the author to have been the most successful. However, the work of the geologist is handicapped considerably by cultivation of the land.

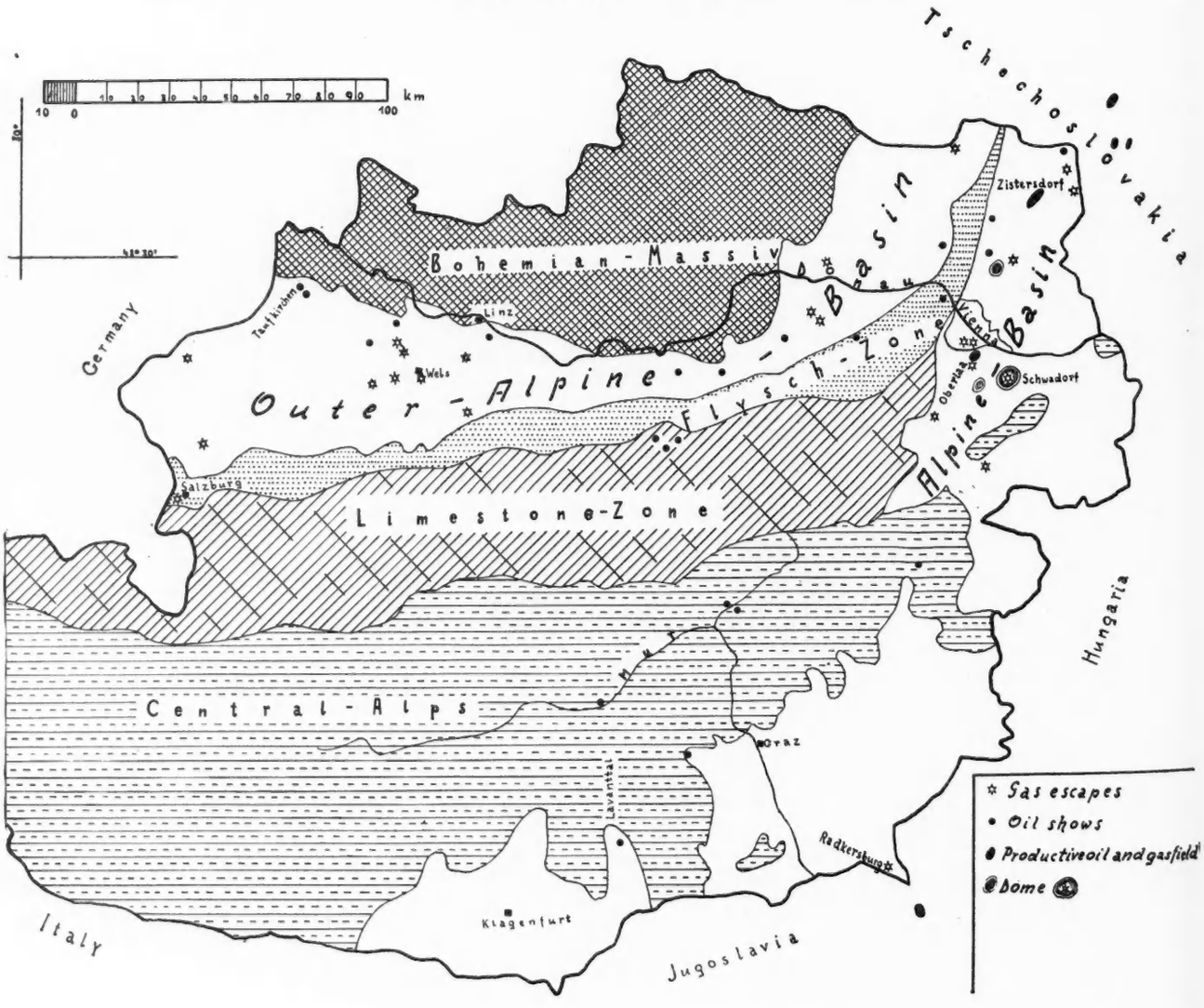
Outer-Alpine Basin

The wide and cultivated land of hills and alluvial plains between the Alps and the Bohemian Massive is called the Outer-Alpine basin. It extends as far north as Moravia (Czechoslovakia) and Poland. Toward the west the Outer-Alpine basin runs on into Bavaria. Tertiary sediments of the basin exceed 1500 meters in thickness and consist of sands and "clayic" marls, which in Austria are called "Schlier" and belong to Oligocene and Middle-Miocene ages. Their uppermost part is composed of the Oncophora sands (Helvetian) and lies unconformable with the rest. At the base and on the northern rim (shoreline of the Bohemian Massive) the marl has intercalations of coarse sands. Toward the middle of the basin the marl thins out or grades into fine sands or sandy marls. In the northern part and in the center of the Outer-Alpine basin the strata are slightly folded. But as the basin extends toward the margin of the Alps the formation becomes more and more strongly folded.

Certain geologists in Austria and certain of those who have been called in from other countries in professional capacity are of the opinion that the Miocene is overthrust by the Flysch of the Alps. In this connection, many years ago a wildcat near Wels, in Upper Austria, encountered a mild outburst of gas in a sand at about 400 meters depth. In another hole, a wildcat drilled to 1000 meters in the vicinity in 1901 and reaching the gneis substratum had only very faint showings of gas. To a very limited degree, gas has been used for decades by some of the inhabitants of Wels and its surrounding villages or hamlets. How very limited is seen from the fact that output of the wells is measured in hundreds and thousands of cubic meters per annum, and not per day.

The geologic situation is far from simple. Development of the formation is better toward the northern margin of the Outer-Alpine basin because of the sands. The thickness of the formation and the tectonics, however, are better to the south, where slight and flat dipping shear faults occur. Seldom can the latter be recognized at the surface. Key beds are missing, and it has been found logical to as-

Sketch of Austria and its oil and gas showings (prospects) and its oil and gas producing fields



sume the possibility of a fold evident on the surface being somewhat removed deeper down.

Within the last few years the state government of Upper Austria drilled several holes to depths of 500 meters in the neighborhood of Bad Hall. No commercial indications of oil or gas were found in these wildcats. Later, European Gas and Electric Company, after extensive geological, magnetic and gravimetric preliminary work drilled two failures. One of these, located at Willing, was drilled to 679 meters. The other, situated at Gunskirchen, stopped drilling at 512 meters.

It is true that such manifestitations of petroleum such as staining, seepages, impregnated sands, gas seepages and sulphurous water have been observed at many places in Austria from Bavaria to the Czechoslovakian frontier. However, since the World War only one place in the Outer-Alpine basin has yielded oil, and that in small quantity. This is at Taufkirchen, near Scharding. The sand, ranging up to 9.5 meters in thickness and being composed of about 40 percent tar, was found to be overlying the granite under a Tertiary cover ranging in thickness from 130 to 150 meters. Granite was also found to be tar stained. On a small block of acreage at Taufkirchen six out of nine wells drilled since the war encountered the oil sand. Barring mechanical difficulties and assuming the most efficient completion method was used, Taufkirchen may yield 6000 car loads of heavy, black oil.

Taufkirchen oil field is on top of an anticline cut on its southern flank by a fault. The anticline is very near the margin of the Outer-Alpine basin, but the wells drilled thereon have no correlating value with reference to interpreting subsurface conditions because most of the nine were drilled without professional services or for coal.

As shown on the accompanying map, a number of small seepages of gas or oil were found in the neighborhood of Taufkirchen. It was quite the same with many 1000-meter holes drilled for coal in the southern part of the Upper Silesian Coal Basin under the same geologic conditions. Heavy outbursts of gas occasionally were encountered. Sometimes these blowouts lasted for a month, but usually endured for a few days only. In Morawia, at Sokolnitz, thick tar was found recently in a position corresponding to that in which tar was found at Taufkirchen, Upper Austria. It may be said conservatively that from Bavaria as far as Roumania, the foreland presents a crude oil reservoir problem, solution of which belongs strictly to the future.

Tertiary Bay of Graz

At the eastern margin of the Alps the Tertiary Bay of Graz forms the western end of the great Pannonian basin and belongs currently partially to Austria, partially to Hungary, and partially to Jugoslavia. For a number of years Jugoslavia has had a small annual production of crude oil, and today good examples of seepages are visible and known in the district of Murinsel, near the Hungarian and Austrian frontiers. These places, particularly those lying within the district of Murinsel, have never been subjected to comprehensive geological exploration.

An anticline of the larger classification seems to be hidden under the alluvial gravel. And although in the neighboring Hungary deep dry holes have been drilled

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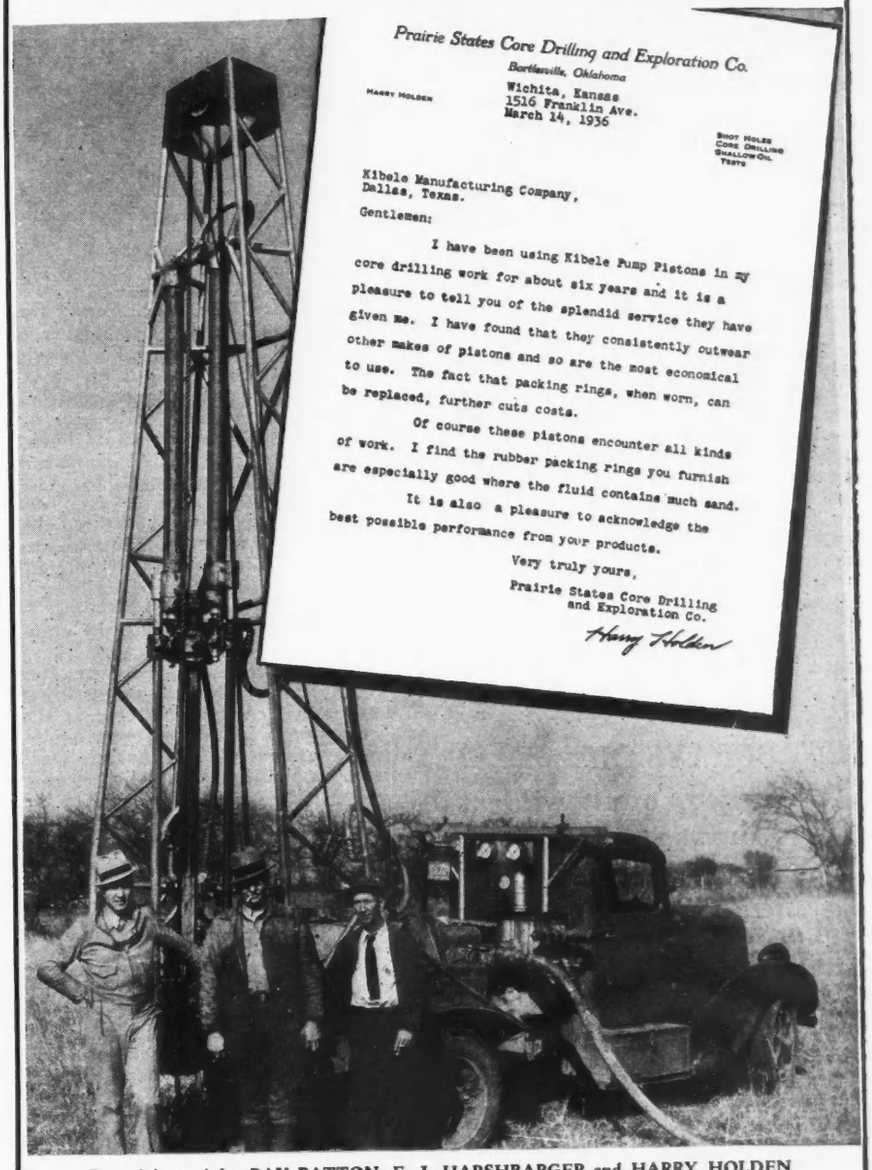
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into Pliocene beds, one might safely say that only the southern portion of the Tertiary Bay of Graz is of interest to the oil man. In this southern portion of the bay thick Mediterranian beds may underlie the Sarmatian and Pliocene beds of the surface. Near Radkersburg a little gas was found in a drill hole at 390 meters. It was 42 percent methane and 45 percent hydrogen. The tectonics however, are hidden, and exploratory work is indicated.

If we summarize the conditions as they are known today, we see that those same conditions are not favorable for great and rich oil and gas fields in Austria, because of the absence of thick sediments and thicker bituminous shales. Smaller fields with moderate reserve ratings are possible here and there.

But the commercial situation is encouraging. Austria's imports of oil and oil derivatives exceed by far 300,000 tons per year. The government is supporting the search for oil and gas reservoirs by legislation and by reduction of taxes.

But, the great expectations proclaimed, even by state officials, for Austria's future as an oil producing nation have been exaggerated.

It should not be lost sight of, nevertheless, that regardless of how small the new field may be, any new production in Austria is extremely important to Austria. But compared to the country's demands for crude oil and derivatives of crude oil, it is my opinion that domestic production of crude oil in Austria will always remain relatively small and inadequate. Continued importation is indicated.

TEST SPRAYS OIL

Okfuskee County wildcat also shows strong gas

TULSA.

WITH the exception of the opening of a new county line pool, work during the past week in eastern Oklahoma was routine. J. K. Gardner, Ray Vincent et al's Musgrove 1, SEc NE 13-13-19e, just west of the Okmulgee County line in Okfuskee County, drilled to the top of Dutcher sand at 2565 feet and began to spray oil. Gas volume was estimated at 15,000,000 cubic feet.

Musgrove 1 is the second well on this same structure, the first being a gas well across the county line on what is called the Double OK pool. Opeartors believe this to be an important development in shallow production in this area and locations are reported in the vicinity. No definite production test has been made as the week closed.

Pure Oil Company's Rentie 1, SE NW NE 26-12-11e, Okfuskee County, an old well of the North Baltimore pool, is being deepened to explore the lower formations. Late in the week the well was below 3638 feet drilling in the Wilcox sand. The sand was topped at 3582 feet and showed saturation. Production from 3600 feet was estimated at between 50 and 75 barrels per day. There was very little gas with the oil and no water. Operators are drilling ahead slowly.

This area is of old development, most of the production being from the Wilcox sand from comparatively shallow depths. The series of producing zones is often referred to as "the county line zone."

Potential Rising

OKLAHOMA CITY EXTENSION IS NEAR MILLION-BARREL MARK

WEEKLY STAFF REPORT

Oklahoma City.—Potential output for the north extension of the Oklahoma City pool will reach 1,000,000 barrels daily by July 1. On the basis of allowable of 4.5 percent of potential, output of this new part of the field will be 45,000 barrels daily, a figure it should hold until new potentials are taken and the next allowable set for October 1.

Of the 76 tests active in the field, 32 are in the stages of waiting on cement to set, drilling plugs, drilling in, or taking potentials. These wells will be completed within a week. By July 1, 50 of the present tests should be completed.

Where the potential figure goes after July 1 depends on several factors that do not permit calculation. One is the consistent drop in flow of new wells. Potential ratings of 20,000 barrels were frequent in the first 40 wells. Now a rating of 10,00 barrels is high. If the drop continues, the final wells to be completed in July may record such low potentials that output under the 4.50 percent restriction will be small.

Another difficult factor in determining the future of the field is the course of development in the area that is zoned for drilling but as yet unleased. From Twenty-third street south almost to Fifth street, drilling is permissible, as property owners have voted in its favor. But this includes some of the sections with expensive homes, whose owners are holding out for bonus prices in excess of those prevailing west of the state capitol. With low output indicated by the pressure drop, producers are not willing to pay the bonus figures demanded.

It is significant that holders of the leases now under development have not undertaken general development of this territory, which would link the north extension with the older part of the field.

Regardless of the turn of development in this zone, the north extension will contribute at least 45,000 barrels of oil daily to the Oklahoma production total. The next potential should witness a drop of 50 percent below existing figures. This drop, however, will be offset by changes in allowable sufficient to maintain at least 45,000 barrels daily for the final six months of the year.

Wilcox Further Defined

A damper on Wilcox sand production came last week when British American Oil Producing Company's Summit 1, Twenty-third street and Blenn Elyn place, found that formation dry. It was drilled through at 6329 feet, and drilling was halted on four other wells while this one was drilled ahead. At 6500 feet it picked up the formation known as the School Land sand, where it started making 29 barrels of oil an hour on a test.

Drilling was resumed on surrounding tests when this sand showed production. Although production from this formation will be small in comparison with Wilcox sand potentials, it will not be prorated. This sand, also known as Simpson below Wilcox, is responsible for some of the production in the older part of the field. It is the policy of the Oklahoma Corporation Commission not to prorate wells in this sand.

Harn 1, the outlaw well started by the K. & L. Petroleum Company before the area around the capitol was zoned, indicated an enlarged producing area around the capitol when it began making 80 barrels an hour. This well is three blocks south of the capitol. Sale of the well and the lease to Sunray Oil Company and Phillips Petroleum Company was announced a day previous to completion. Total depth is now 6497 feet. It may be drilled deeper. Gas production is three million cubic feet.

Except for these two completions the wells finished during the week were in the proven area and came under routine work without significance other than their addition to potentials and production.

A well being watched is Stiles 1 of Phillips Petroleum Company at Tenth street near Lindsay avenue. It is only a quarter of a mile from the older part of the field. It is running casing at 6379 feet. Should this well yield high potential, it would encourage producers to gain additional leases between the older field and the north extention, the area of finer homes where higher bonus prices are being asked.

Sinclair Prairie Oil Company's Susie Dills 1, NE NE NW 17-13n-3w, in the Britton area at the extreme north end of the producing zone, Oklahoma County, extended production to the west. In five hours the well flowed 250 barrels of oil accompanied by seven million cubic feet of gas. Production is from the Wilcox sand at 6635 feet. During the last test of this well, made through tubing, it produced 251 barrels in five hours and 377 barrels in eight hours. A test for 24 hours, through tubing, gauged the well at 1005 barrels from 6670 feet. The same company's Kindblade 1. SE NE SW

17-13-3w, shut down for a test and acidization early in the week, was acidized with 4000 gallons and with a top oil load of 515 barrels.

The Marathon Oil Company's Agnes 2, NW SW SE 32-14-3w, cut the Wilcox at 6637 and was running 15 feet higher than the Brittan discovery well, an offset. It was running casing, and will be an early completion.

Arab Petroleum Company's deep wildcat, Autry 1, NWC 16-7n-3w, northwest of Purcell, McClain County, was abandoned. A difficult fishing job and lack of earlier shows were responsible. The hole reached 8775 feet in the Cherokee shale of the Basal Pennsylvania formation.

Mid-Continent Petroleum Corporation's Campbell 3, NW SE NE 33-17-4w, in the Crescent pool, Logan County, was completed for one of the biggest producers in the pool. During the last hour of a three hour test, production was 318 barrels. Twenty-four hours potential was computed at 7787 barrels. Gas accompanying the production was estimated at 6,300,000 cubic feet.

Continental Oil Company's McConnell 2, NW SE SE 28-17-4w, in the Crescent pool of Logan County, was opened for a test late in the week and filled storage in two hours. The well set a new record for Oklahoma when it produced 1685 barrels the first hour of the test and 1577 barrels during the second hour. It was shut in for lack of tankage.

This producer is in the soft pay section of the second Wilcox sand, which was penetrated 98 feet. Total depth of the well is minus 5242, considerably below the immediately adjacent producers and beneath what some operators have considered the water table.

JESSE EXTENDED

Sunray's Shumard 1 bails oil from Bromide

Ada.—Jesse pool, Pontotoc County, received an important extension with completion of Sunray Oil Company's Shumard 1, NE SW SE 2-1n-7e, a townsite location. Pay was found at 4539 feet in the second Bromide sand topped at 4498 feet. Hole is bottomed at 4541 feet. The hole filled 250 feet with oil and continued to enter the casing as bailing progressed. Boiler has been moved back preparatory to testing. Shumard 1 was indicated as a producer two weeks ago when entering the lime.

This well ran considerably lower than the main Jesse pool, but higher than the Sledge and Lynch lime producer one-half mile east. Continental Oil Company's McCarty 2, NE SE NW 12-1n-7e, bottomed at 4745 feet, further defined the water table in the main part of Jesse pool. In two hours the well produced 1083 barrels of oil cut with six percent salt water. Water table in the McLish formation has been set at minus 3990 feet. Lime production may be further extended.

Potentials were obtained on three of the Fitts wells, Pontotoc County, during the past week. Continental Oil Company's Burris-Holcomb 2, NE NW SE 27-2n-7e, received a potential of 3615 barrels through tubing from 4270 feet. Mid-Continent Petroleum Corporation's McKoy 2, SE cor SW 20-2n-7e, received a tubing potential of 1748 barrels and E. H. Moore and associate's Moody 1, NWC 26-2n-7e, obtained a potential of 3,016 barrels.

Stout Area Disappointing

The Stout area, east of Shawnee on the Seminole - Pottawatomie County line, proved a disappointment with two failures. Stanolind Oil and Gas Company and Gulf Production Corporation's Wyant 1, NW SW SE 3-10-5e, a community test including the Amerada Petroleum Corporation, topped the Wilcox at 4707 and drilled to 4715 feet. The hole showed water and was abandoned. The same interests Newell 1, SE SE NW 3-10-5e, was plugged back to 4438 feet after showing for water and some oil at 4450 feet. Stanolind et al's Simpson 1, NE NW NE 9-10-5e, failed to show at 4506 feet during a thirty minute test.

J. E. Crosbie and Associate's Solomon 1, SEc 30-6n-8e, is a wildcat 1¾ miles east of Sasakwa and 3½ miles south of production in the Sasakwa pool. The well is a Wilcox sand test and was drilling late in the week at 1200 feet. The firm has a 20-acre lease covering the location.

OUTPOST STRIKE

Gulf's Shirley 2 extends Tipton field southeast

Ardmore, Okla.—Southern Oklahoma passed one of the quietest weeks of the year. The status of the two tests of major interest in the area has been but slightly changed. Gulf Oil Corporation's Shirley 2, SE NW NE 6-1s-19w, in the Boucher-Tipton sector of Jackson County, furnished the only break in routine operation when it extended the Tipton production to the southeast.

Shirley 2 made 1070 barrels on a 24-hour test from 2604 feet in the Cisco series. During the last three hours of the test the production averaged 54 barrels an hour. Penetration into the sand is 18 feet. The company is moving tools to Shirley 3, NW NW NE 6-1s-19w, where pipe is set at 2607 feet.

North of the Altus pool and east of the town of the same name, J. Ben Russell has acquired a block of leases and has made a location for his Daniel 1, NW NE SE 13-2n-20w. A show of oil in the granite wash was encountered in Burnham and Young's Oliver 1, NW NW SE 26-1n-20w, southeast of the Altus field in Jackson County, and was drilled ahead.

Sinclair Prairie Oil Company's Stockton 1, SE SE SW 26-6s-2w, which has had a difficult fishing job, has cemented out the fish and is preparing to drill by. This is one of the two Love County tests that have been claiming the major share of south Oklahoma news. In the same county, Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Westheimer 1, SW SE SW 27-6s-2e, the erratic first Love County test to show for oil, has been tested three times since last acidization. On the last test the well flowed and swabbed 152 barrels in 24 hours. This recovery was somewhat over the oil load, most of which has previously been removed. Hole is bottomed at 2790 feet in the Viola lime.

OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ATOKA COUNTY—		
Riverland O & G Jones 1, sw sw ne 4-3s-9e	*	2724
CARTER COUNTY—		
Twin State, Bridenthal 2, ne nw ne 9-1s-3w (pb 2848)	80	3135
Simpson-Fell, Davis 1, nw nw nw 9-2s-2w (pb 1800)	15	1900
COAL COUNTY—		
Carter & Magnolia, Taylor 1, ne ne se 34-1s-8e	lcn.	abd.
COMANCHE COUNTY—		
Ashcraft & Palmer, Rowells 1, ne nw ne se 21-2n-10w	18	996
COTTON COUNTY—		
Shasta Oil, Cobb 13, nw sw ne 2-2s-10w	*	2205
CREEK COUNTY—		
Anthony, Bruner 1-A, nw ne ne 4-16n-12e	¶1½-45	2059
Guy Harris et al, Sellen 1, nw se nw 13-17n-7e	40	2041
Indo Oil, Wataski 1, se nw ne 4-17n-10e	*	2715
Deep Rock Oil, Brinton 8, sw ne sw 6-18n-7e	20	2562
GREER COUNTY—		
Hooser, Sonomaker 1, sw sw sw 24-7n-21w	*	480
HUGHES COUNTY—		
Carter Oil, Hampton 8, ne se ne 1-9n-8e	315	1753
Manahan Oil, Oliphant "E" 5, se sw nw 1-9n-8e	40	1699
Gulf Oil, Tiger 1, nw nw sw 6-9n-8e	35	1698
Wilder et al, Barnett 1, nw nw ne 27-9n-10e	¶3	2331
Buell et al, Turner 1, ne se nw 28-9n-10e (pb 2310)	*	2780
LINCOLN COUNTY—		
Magnolia, Epps 3, nw se se 32-15n-3e	*	5113
Charles Balph et al, Young 1, cn½ nw nw 23-15n-5e	*	51
MARSHALL COUNTY—		
Knaggs, Adams 2, se sw se 31-7s-6e	*	405
OKFUSKEE COUNTY—		
Blackwell, Dolton 1, se se ne 36-10n-8e	500	1747
Manahan, Dolton 8, ne ne se 36-10n-8e	360	1747
Stekoll, Yahola 1, se sw sw 2-10n-11e	*	2530
Amerada-Stanolind, Wells 1, sw sw nw 7-11n-7e	*	4505
OKLAHOMA COUNTY—		
Barnsdall, Edwards 1, sw se se 15-12n-3w	¶19-21,237	6456
Key, Inc, Pryor 1, ne se sw 15-12n-3w	*	6339
Barnsdall, Dawson 1, ne sw ne 22-12n-3w	¶17-17,392	6439
Barnsdall, Lyons 1, sw nw ne 22-12n 3w	79	6511
British-American, McNabb 4, sw se ne ne 22-12n-3w	¶31½-17,474	6472
British-American, Warr 1-A, se nw se 22-12n-3w (otd 6385)	6720	6405
Empire, Levy 2-A, ne ne ne nw 22-12n-3w	*	5705
Empire, Levy 3-A, ne se ne nw 22-12n-3w	*	5422
Empire et al, Levy 4, ne ne nw 22-12n-3w	lcn.	abd.
Levy 5, se ne nw 22-12n-3w	lcn.	abd.
Levy 6, ne se nw 22-12n-3w	lcn.	abd.
Levy 7, ne se nw 22-12n-3w	lcn.	abd.
Levy 8, se se nw 22-12n-3w	lcn.	abd.
Phillips, Cooper 1, ne nw se 22-12n-3w	¶81.3-11,267	6496
S. Harrell 1, se ne sw se 22-12n-3w	¶10-11,595	6511
Hoagland 1, se sw ne se 22-12n-3w	¶24-16,484	6527
Liberty 1, sw nw se se 22-12n-3w	¶12½-15,541	6519
Murray 1, se ne sw ne 22-12n-3w	¶7¾-10,698	6474
Neff 1, se nw ne se 22-12n-3w	¶11-13,118	6506
Sawyer 1, nw se ne 22-12n-3w	¶5-11,451	6459
Sawyer 2, se s w se ne 22-12n-3w	¶12-12,481	6440
Slick-Urschel, Suenram 3, sw nw ne 6-13n-3w	¶12-6896	6569
Harrel Davis, Hays 1, se sw ne 20-13n-3w	lcn.	abd.
OKMULGEE COUNTY—		
Aggis Drlg, McKinney 5-A, nw nw sw 16-15n-14e	10	846
OSAGE COUNTY—		
Skelly Oil, Smith 2, sw se nw 26-26n-6e	2112	2927
Pueblo Oil, 1, se sw nw 14-21n-8e (pb 2480)	*	2530
Midco et al, 1, nw nw se 11-23n-6e	*	2893
Tidewater, Graves 3, se se ne 9-24n-7e (pb 2570)	140	2592

Company, Well and Location	Init. Prod. Bbls.	Depth
I. T. I. O., 442, nw se se 34-24n-8e	¶2¾	826
Carter et al, 9, csl ne ne 10-25n-6e	673	2767
Coralena Oil, 11, se ne sw 15-25n-6e	60	2780
Champlin Ref, Terrell 5, sw nw se 15-25n-6e	25	2815
Champlin Ref et al, Presbury 1, nw ne se 22-25n-6e (pb 2745)	104	2757
Alexander et al, 6, nw nw sw 36-25n-11e	6	1700
Skelly, Smith 3, sw ne nw 26-26n-6e	¶3½-1473	2922
Kewanee Oil, Hale 4, ne sw se 27-26n-6e	145	2950
Central Oil, 3432, ne ne se 34-29n-10e (otd 1161)	4	1774
PONTOTOC COUNTY—		
Magnolia, Norris 2, nw sw se 18-2n-7e	*	2000
Fleetborn, Morin 3, se sw se 20-2n-7e	¶2-3172	4305
Stahl, Dennis 5, sw sw sw 21-2n-7e	¶5-3741	4350
Blackstock, Moody 2, sw sw sw 23-2n-7e	¶3-2700	4334
Magnolia, Woolley 2, ne ne ne 28-2n-7e	¶3-2996	4310
Skelly, Park College 11, nw nw ne 28-2n-7e	¶3-3686	4315
Senora Oil, Berco-Skirvin 1-A, sw sw sw 3-4n-6e	*	1127
POTTAWATOMIE COUNTY—		
Sinclair Prairie, Pompey 1, nw sw sw 24-7n-6e (pb 3338)	¶1¼	4475
SEMINOLE COUNTY—		
Deep Rock, Lozier 1, nw sw nw 20-9n-7e (pb 4000)	342	4137
The Texas Co., Janey 2, ne ne sw 11-7n-6e	568	4283
STEPHENS COUNTY—		
Mudge Oil, Robertson 6, se sw sw 10-3s-5w	40	1480
TULSA COUNTY—		
Cummings, Bunger 6, cnl s½ sw nw 27-17n-13e	*	2133
Mechlin, Luster 2, nw se ne 14-19n-13e	*	1338

*Failures; †Junked; ¶Million cu. ft. gas.

Company, Well and Location	Init. Prod. Bbls.	Depth
British-American, McNabb 2, se se ne 22-12n-3w	15,365	6488
McNabb 3, ne se ne 22-12n-3w	17,542	6487
McNabb 5, sw se ne 22-12n-3w	15,954	6488
Warr 1, se nw se 22-12n-3w	15,059	6385
Phillips, Vista 1, sw nw se 22-12n-3w	13,307	6500
British-American, Piersol 3, nw sw sw 23-12n-3w	14,715	6425
Marathon, Winters 1, sw sw nw 20-13n-3w (pb 6675)	5418	6704
Pure Oil, Malm 8, ne sw sw 30-14n-3w	7967	6709
Marathon, Rankin 2, ne se sw 31-14n-3w	2662	6720
OKMULGEE COUNTY—		
Stekoll, Hawkins 11, ne ne se 6-11n-12e	*	1735
Wickes & Pollard, Miller 1, nw nw nw 23-14n-12e	*	1748
OSAGE COUNTY—		
Lewis & Continental, 10, se nw se 9-24n-7e	349	2637
Lewis & Continental, 11, sw ne se 9-24n-7e	427	2594
Carter et al, 7, sw ne nw 3-25n-6e	561	2889
Lewis Prod., Callihan 2, sw se sw 23-26n-6e	2013	2909
Kewanee Oil, Renald 7, nw ne sw 26-26n-6e	1193	2933
PAWNEE COUNTY—		
West et al, Walls 1-A, ne ne ne 5-20n-8e	6	1461
PONTOTOC COUNTY—		
Continental Oil, Hause 1, nw nw se 12-1n-7e	3747	4738
Fleetborn, Morin 2, sw se se 20-2n-7e	3000	3826
Crosbie, Burris 3-B, sw se nw 27-2n-7e	3492	3573
McKoy 1-B, sw ne ne 28-2n-7e	3288	3622

Company, Well and Location	Init. Prod. Bbls.	Depth
Moore, Harper 8-A, ne nw ne 29-2n-7e	2587	4290
McKoy 4, sw se se 29-2n-7e	2153	4410
Schauers 11, sw ne nw 29-2n-7e	2481	4310
Carter, Smith 5, se ne ne 31-2n-7e	5084	4372
Sinclair Prairie, Ralls 9, nw ne sw 28-5s-8e	15	821
Delaney et al, Harrell 3, cse se 29-5n-8e	24	860
Sunray Oil, Shields 4, ne sw se 33-5n-8e	*	1552
POTTAWATOMIE COUNTY—		
Mohawk, Lippest 1, ne ne ne 35-6n-4e (pb 2956)	*	3020
Smith & Scott, Goodin 2, ne ne nw 3-7n-4e (pb 4030)	35	4266
Halliburton, Pierson 2, se se ne 9-7n-4e (pb 3515)	30	3720
Magnolia, Green 1, sw sw nw 13-7n-4e (otd 4347)	549	4379
SEMINOLE COUNTY—		
Francis, Huddleston 3, nw se sw 19-5n-6e	29	2540
Sinclair Prairie, Lusty 1, nw ne ne 13-5n-7e	18	2775
Vierson et al, Davis 2, ne se ne 10-6n-6e	112	2465
Wilson's Casey 1, sw ne ne 25-6n-7e	*	3300
Sunray Oil, Williams 1, nw se se 13-8n-6e	*	4157
Pioneer O&G, Fixico 1-A, nw se ne 26-9n-6e (pb 3818)	*	3873
Vierson, Fixico 1-A, cnw ne 26-9n-6e	*	2535
Amerada & Stanolind, Alexander 1, ne nw ne 14-9n-7e (pb 3434)	*	4373
Carter, Warrenburge 1, cw½ nw se 11-10n-6e	870	4134
Gulf et al, Community Scott 2, ce½ se nw 11-10n-6e	2515	4170

*Failures; †Junked; ¶Million cu. ft. gas.

OKLAHOMA
Completions

The following list of completions were inadvertently omitted from the June 15 issue of The Oil Weekly and are inserted here to keep the records straight.

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Samedan, Akers 1, nw sw sw 4-2s-2w	*	1726
McKinney 1, ne se se 5-2s-2w	12	1456
Louis Sykes, Byrd 1, se se se 5-2s-2w	12	1608
Magnolia Pet., Ruse 41, sw se nw 23-4s-3w (otd 1107)	3	1137
CREEK COUNTY—		
McBride, Kirk 1, se ne se 21-15n-7e	*	4006
El Dorado Oil, Meyers 1, nw se ne 1-17n-10e	¶¼	568
Swift et al, Coonrod 2, sw sw nw 3-19n-9e	*	1317
HUGHES COUNTY—		
Chapman, Fee 3, sw ne nw 1-9n-8e	300	1714
Sinclair Prairie, Oliphant 11, se ne se 1-9n-8e	210	1680
Amerada-Stanolind, Kirby 2, sw nw nw 6-9n-9e (pb 640)	*	1814
Amerada & Stanolind, Stewart 1, se se nw 31-9n-9e	3142	4058
JACKSON COUNTY—		
Gulf Oil, Southern 1, ne se se 31-1n-19w (otd 2738)	5	2813
Associated Oil, Harrell 1, ne ne se 13-1s-21w	*	1360
KIOWA COUNTY—		
Atlantic Oil, Ta-Home 1, ne nw ne 24-7n-16w	*	1354
Shaffer, Stone 1, sw ne ne 34-7n-17w	*	2095
LINCOLN COUNTY—		
Stanolind-Amerada, Lewis 1, se sw se 32-15n-3e	1036	5060
NOBLE COUNTY—		
Shell, Moelling 4, sw ne se 17-20n-2w	1774	5195
Phillips & Shell, O'Neil 2, sw se se 16-23n-2w	3561	4254
OKFUSKEE COUNTY—		
Keaton & Gold, Likowski 2, csl ne nw 26-11n-11e	*	2110
OKLAHOMA COUNTY—		
Hollenbach et al, Cooper 1, nw nw ne 15-11n-1e	*	6466
Barnsdall, Guthrie 1, sw sw se 15-12n-3w	316	6480

New Discoveries

ACTIVE WEEK ALSO INCLUDES SEVERAL GOOD EXTENSIONS

WEEKLY STAFF REPORT

Wichita.—Kansas continued to report new discoveries, good showings, and extensions with increasing regularity. Rice County continued to hold the major share of interest, although other spots were proven and scattered interest over the state. Ellis County counted a new well, and there were a number of extensions of proven areas.

Shell Petroleum Corporation's Maughlin 1, NE NW SE 11-20-8w, the 36,000,000-cubic-foot gas well southeast of Lyons in Rice County, which killed the gas production to deepen, developed a fishing job with hole bottomed at 3294 feet in the Dolomite. Operators were milling up combination socket bowl as the week ended.

Two New Pools

Hartman-Blair Corporation and The Texas Company's Shartz 1, NE SE SE 33-19s-10w, two miles east of the Silica pool of Rice County, proved a new pool when it came in at 3318 feet. The well pumped 335 barrels in 15½ hours on potential test without being acidized. Gravity of the oil is 43.

Shell Oil Corporation and others' Hafferman 1, SE¼ 6-19-9w, a wildcat test, opened another new producing area southwest of the Ploog pool, Rice County. The top of the Siliceous lime was found at 3182 feet, production from 3203 to 3207 feet, total depth. On a five-hour swabbing test the well made 192 barrels without water. After the head was off, the well continued to make 20 barrels on swab. The test was shut down for installation of pumps and tankage.

Bloomer pool in Barton County was extended with The Texas Company's Moran 2, NE SE SW 25-17s-11w, which pumped 800 barrels from the Siliceous lime during 16 hours. Hole is bottomed at 3286 feet, 12 feet in the pay.

Pacific Midwest Oil Company, new in Kensas development, has located a test which will be watched with more than usual interest. They are building rig at their Mattie Rexford 1, SEc SW 8-30-29w, 25 miles northwest of Meade, in Meade County. There have been no deep tests of this region although one well drilled to below 800 feet before being abandoned. Location was near Fowler. A location south and west of Meade, drilled in 1928 by the Blackwell Oil & Gas Company went to 4600 feet, but was not considered on a structure. Nearest production to the new location is the Hugoton gas area, where production is from the laminated Dolomite lime. This region has not been productive of oil although it has not received a thorough testing of the lower strata. As an area productive of gas it is not defined in any direction.

In Ellis County, which continued to increase in importance, Bridgeport Machin-

ery Company and associates' Madden 2, NE NW NW 26-15-18w, extended Ruder pool production to the southeast. The well showed for oil at 3331 feet and when drilled to 3344 filled 1000 feet in 13 hours while operators were underreaming. It may be found later that this location is not on the Ruder pool, but that it is another pool. Madden 2 topped the Oswald at 3260, six-inch was set at 3276, and oil started into the casing at 3331 feet. In 11 hours, a little less than 1100 feet of oil rose in the hole.

Ellis County Strikes

Northeast of Hays, Ellis County, Harris and Haun, Inc., opened a new pool when Schmeidler 1, SEc SW 3-13s-17w, drilled out the plug and the hole filled 1600 feet in six hours. Hole is bottomed at 3361 feet. There is no other production in the vicinity of this strike, which is in the geological trend from the Rice County pools to the south and east.

In the same county, Twin Drilling Company's Copeland 1, NE SW 26-14-19w, southwest of Hays, at 3710 feet, is apparently opening another pool. The hole filled 2125 feet with oil in 12 hours from sand at 3407 to 3410 feet, a comparatively slight penetration.

Shutts pool, Ellis County, was extended to the south with Phillips Petroleum Company, Skelly Oil Company and The Texas Company's Bertha 1, CWL SE 5-12-17w, which pumped 135 barrels naturally from the Siliceous at 3650 feet.

Graham County, northwest of the general play, is showing for oil. Vickers Oil Company's Hutton 1, NE SE 29-8-22w, showed for oil at 3475 to 77 feet in the upper Lansing. When deepened, the well showed for water at 3478 feet and operators were drilling ahead from 3482 feet. This is the only drilling well in the county.

Continental Oil Company's Thompson 1, CE½ SW 13-18-26w, extended the Aldrich pool of Ness County about two miles to the south. The well was acidized with 4000 gallons at 4462 feet and pumped 555 barrels in 24 hours on test.

In Clark County, which has no oil and only one gas producing pool, Watchorn and Olson Drilling Company have rotary equipment on the ground for a test to the deeper horizons. This test is located in the gas producing area, SW NE SE SW 17-32-21w, and is about a quarter of a mile north of a dry hole drilled to 6900 feet. Geologists have anticipated deeper production in this general area and numerous attempts to strike flank locations have been made. This well will be watched with interest by Kansas operators.

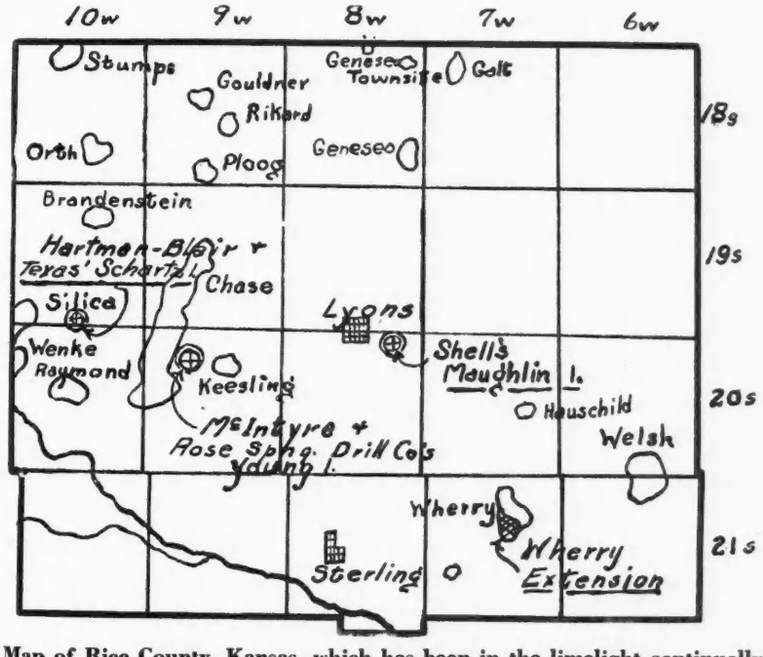
Another firm new to Kansas play is Black Gold Petroleum Company of Oklahoma City, which has acquired two blocks of leases in Trego and in Cowley Counties. A test of the Murphy pool, west of Arkansas City, Cowley County, has been started to the Mississippi lime. The tract is 160 acres. Another well planned is on the company's 7000-acre lease in Trego County, west of Ellis.

W. C. McBride, Inc., extended the Haury pool of McPherson County with Siemens 1, a chat producer. The hole filled 1800 feet with oil in 1½ hours. Top of the chat was had at 3253, with hole bottomed at 3350 feet.

In the same county, Phillips Petroleum Company's Kaufman 1, NE NW 2-22-2w, is a wildcat location south of Moundridge. Test is located on the Braber trend and will be drilled with cable tools. This area has been core-drilled.

Dickey Oil Company and Gulf Petroleum Corporation have made location for Goering 1, 17-21-1w, semi-wildcat start one mile north of the recently completed Marathon Oil Company's Decker 1, north extension of Braber production, which made 1970 barrels on a potential test.

Empire Oil & Refining Company's Cunningham 1, SEc 26-18-1w, is still having difficulty trying to complete. Coming in first as an oil well, it began to show water which operators believed to be coming from behind casing. After successfully stopping the water, another test showed free oil. A still later test again developed water and the operators are to set casing on top of the Mississippi at 2825 feet.



Map of Rice County, Kansas, which has been in the limelight continually for the past several weeks due to new fields being opened and an extension to the Wherry pool. McIntyre and Rose Spring Drilling Company's Young 1, between Keesling and Chase production, opened a new field in SW SE 8-20-9w, with a 435 barrel flow from Arbuckle lime. Hartman-Blair Corporation and The Texas Company's Schartz 1, NE SE SE 33-19-10w, may open the twentieth pool in the county. Shell Petroleum Corporation's Maughlin 1, NE NW SE 11-20-8w, opened a gas field with a flow of 36,000,000 cubic feet from the Arbuckle lime, but is coring ahead. Darby Petroleum's Johnson 1, SE SE SW 10-21s-7w, made 2160 barrels and extended the Wherry pool south.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
Mid-Continent, Matzek 6, ne sw se 25-19s-11w	2416	3289
BUTLER COUNTY—		
Maxwell Pet., McGill 9, nw se nw 31-24s-14e	100	2684
El Dorado Ref, Houston 3, ne se nw 1-25s-3e	130	2705
COWLEY COUNTY—		
Wakefield et al, Daniel 1, se sw se 3-30s-3e	*	3166
ELLIS COUNTY—		
Palmer et al, Ruder 1, sw sw ne 17-15s-18w	651	3551
ELLSWORTH COUNTY—		
Davis et al, Edwards 2, nw sw se 34-17s-8w	1480	3242
GRANT COUNTY—		
Piney O & G, English 1, csw 3-29s-36w	¶5	2950
GREENWOOD COUNTY—		
Moore, Pixlee 5, se se ne 7-22s-10e	120	2361
Barbara Oil, Pixlee 17, ne nw sw 8-22s-10e	40	2518
Saffer & Howell, Sowden 5, nw ne se 16-23s-13e	30	1739
Abe Markus, Smith 3, ne nw ne 6-24s-12e	*	1858
McPHERSON COUNTY—		
Continental et al, Goering 1, nw se se 29-21s-1w	572	3308
RENO COUNTY—		
Shell, Mardis 1, csw nw 10-24s-4w	72	3388
Shell, Seedle 2, sw sw nw 16-24s-4w	1720	3393
Derby Oil, Seedle 6, cs½ n½ sw 17-24s-4w	1432	3377
McPherson Drlg & Derby, Schuechzer 5, cs½ s½ sw 17-24s-4w	lcn.	abd.
McPherson Drlg & Derby, Scheuchzer 6, se se sw 17-24s-4w	1746	3375
RICE COUNTY—		
Phillips, Krampe 11, ne ne se 31-19s-10w	1685	3285
Hutchinson Oil, Wendel 1, sw sw ne 32-19s-10w (otd 3294)	2020	3305
Sinclair Prairie, Sharpe 5, ne ne ne 7-20s-9w	406	3262
Skelly, Sharpe 2, se nw nw 8-20s-9w	1013	3290
John Rogers, Freeman 2, se ne se 4-21s-6w	*	1540
Shaffer et al, Hauschild 1, nw nw ne 15-21s-7w	10,040	3379
Day, Fossey 1, nw ne ne 28-21s-7w	20	3431
Duwe & Schneider, Wright 1, ne ne ne 36-21s-7w	*	3525
RUSSELL COUNTY—		
Stanolind, Booth 4, ne nw ne 29-11s-15w (otd 3157)	364	3253
Central Pet, Rusch 2-B, ne ne sw 19-12s-15w	545	3075
Reynolds, Fredrickson 1, se sw se 6-13s-12w	*	3040
Darby Pet, Steinert 2, se sw sw 25-15s-15w	*	3419
SUMNER COUNTY—		
Stelbar & Dewar Oil, Barlow 1, nw ne se 33-31s-1w	163	2692
Stelbar Oil, Barlow 3, sw sw ne 33-31s-1w	429	3682
WOODSON COUNTY—		
Henderson Oil, Vostroz 1, nw ne ne 23-23s-14e	187	1633
Bell & Alexander, Kash 1, nw nw nw 26-23s-14e	15	1628

*Failures; †Junked; ¶Million cu. ft. gas.

Greater Initials

LATE COMPLETIONS AT HOBBS ARE PRODUCING MORE OIL

WEEKLY STAFF REPORT

Hobbs, N. M. — High initial yields were recorded by a number of the 10 oil producers added by Monument field the past week.

Natural flow of 756 barrels of pipe line oil per hour was credited to Barnsdall Oil Company's A. Cooper 5, C NE SE 12-20s-36e, on the south end of the main section of Monument field, after drilling to 3890 feet, or 319 feet below sea level. Gauge was taken with the well flowing through a single four-inch line on casing, with 40 pounds back pressure recorded on separator. Pressure control equipment was used by the Falcon-Seaboard Drilling Company, Oklahoma City, in drilling in this big producer, which is the fifth outstanding completion for the company's 160-acre property.

The Texas Company added three producers on its Monument field holdings. J. R. Phillips 3, C SW NW 6-20s-37e, flowed 143 barrels per hour through open tubing from lime at 3813-3896 feet, with an elevation of 3576 feet, and State 4-E, CNE SW 1-20s-36e, gauged 152 barrels hourly through open tubing from lime at 3830-3890 feet, with an elevation of 3578 feet. This company's State 1-J, C NE SW 24-19s-36e, on the northwest edge of production, was completed with an initial of 68 barrels daily after acidizing three times with an aggregate of 9000 gallons of solution in lime at 3925-4050 feet. The hole is bottomed 328 feet below sea level.

Amerada Petroleum Corporation's State 1-T, C SE SW 25-19s-36e, situated on a line between the original Monument area and the northeast extension and in a zone that has been marked by small wells, responded to treatment with 2000 gallons of acid in lime at 3939 feet with a flow of 110 barrels hourly through tubing. The well swabbed six to eight barrels per hour before acidizing. This company's State 4-O, C NE NE 30-19s-37e, flowed 967 barrels in 15 hours through 2½-inch tubing from lime at 3970 feet.

Two completions made on the extreme west edge of the field included Shell Petroleum Corporation's J. A. Foster 1, C SE SE 34-19s-36e, which responded to treatment with 1000 gallons of acid at 3970 feet, or 332 feet sub sea, with a flow of 116 barrels the first hour and an average of 73 barrels per hour on the last two hours of a five-hour gauge. Gulf Oil Corporation's J. W. Smith 1, C SE NE 34-19s-36e, was drilled to 3970 feet, or 328 feet below sea level, and gauged 158 barrels in four hours through tubing after using 1000 gallons of acid. Amerada Petroleum Corporation's W. E. Gaither 1 is a new location situated between the latter two wells.

Plugging orders have been issued for Gulf Oil Corporation's S. T. Burk 1, C NE NE 28-19s-37e, nearly one mile east of nearest production in Monument area, after encountering more water in drilling to 4020 feet, with an elevation of 3602 feet. This company's D. A. Williams 1, C NW SE 29-19s-37e, flowed 105 barrels oil in four hours through tubing after using 4000 gallons of acid in lime at 3935 feet, or 328 feet below sea level. Shell Petroleum Corporation's State 1-F, an east offset, has rigged up. Other new locations include Repollo Oil Company's J. R. Phillips 3, NE NE SW 31-19s-37e, and J. R. Phillips 2-B, NW NW NW 31-19s-37e.

The Texas Company's E. L. Alexander 1, C NW SW 7-21s-37e, situated 1½ miles northeast of nearest production in the Eunice field and an equal distance northwest of a small producer in the sandy-lime belt, was showing for a small oil producer late last week at 3835 feet, or 331 feet below sea level. The well was swabbing 149 barrels fluid, including about 50 percent rotary returns, daily after using 2000 gallons followed by 5000 gallons of acid.

Belt East of Jal

Exploratory work in the sandy-lime belt to the east of Jal offered more encouragement for commercial oil production the past week. Sun Oil Company's J. R. Stuart 1, C NW NE 15-25s-37e, provided the outstanding surprise in responding to 200-quart nitro shot at 3279-3380 feet with a flow of 284 barrels of oil in four hours through casing, then gauged 883 barrels daily through one-inch choke on 2½-inch tubing. This well originally was completed at 3380 feet, or 266 feet sub sea, swabbing 35 barrels daily after establishing a drilling record for the state in order to perpetuate the lease. The well was making oil within 19 days after spudding. The Texas Company's W. T. Lanehart 1, C NE¼ 29-25s-37e, flowed 151 barrels oil in 15 hours through tubing after using 4000 gallons of acid solution in broken pay at 3240-3308 feet. Repollo Oil Company's J. T. Lanehart 1, SE NW NW 28-25s-37e, shot with 150 quarts nitro at 3200-3302 feet and flowed 108 barrels oil in 10 hours. Sun Oil Company's B. T. Lanehart 1, C SE SE 20-25s-37e, validated a short term permit in developing a flow of 22,000,000 cubic feet of dry gas, testing 1140 pounds rock pressure, at 2757 feet, and is preparing to mud off production to deepen to the oil horizon.

In the Cary area, situated in the sandy-lime belt to the south of the town of Eunice, Continental Oil Company and California Company's E. M. Elliott 1-A-22, C SW SW 22-22s-37e, rates among the best producers through having gauged 288 barrels natural flow daily through three quarter-inch choke on tubing from pay at 3539-3552 feet. New tests in the area to the north of the town have been somewhat disappointing after treating the oil zone with acid. Gulf Oil Corporation's W. T. McCormack 1, C NE NE 32-21s-37e, swabbed 45 barrels daily after using 1500 gallons of acid at 3802 feet, and is awaiting results of treatment with 3000 gallons of acid. Ohio Oil Company's W. H. Turner 1, C NE SE 29-21s-37e, proved to be about the same type of producer after using 3000 gallons of acid at 3800 feet, or 323 feet sub sea, and has since been treated with 5000 gallons.

BUILDERS STRIKE

New field work affected due to lack of rigs

Hobbs, N. M.—New field work in Lea County has been at a standstill since June 10 when members of the United Rig Builders' Union voted to strike for a $2 hike in their daily wage scale. Rig builders are demanding $14 per day, and $16 for crew foremen.

Strikers are also insisting that only one apprentice rig builder be employed by contractors on each job.

Strike leaders announced that increased living costs made it necessary that wages be increased.

Reports indicate that union members are not in accord, and that the walkout was engineered by union officials from out of the state.

Rig building contractors have indicated that the striking workmen will be replaced, and that operations will be resumed shortly.

Bulk of the field work in Lea County centers upon the Monument and Eunice fields, and in the sandy-lime belt in the east portion of the county. Most operators were caught up on taking care of offset wells and short term leases and permits, and will not be greatly inconvenienced by the labor difficulties for several weeks.

The strike has influenced work in several neighboring West Texas counties.

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EDDY COUNTY (Artesia Field)—		
Red Lake Oil Co., State 6, ne sw 22-17s-28e	25	1954
LEA COUNTY (Eunice Field)—		
Conoco-California Co., A. E. Meyer 10-B-4, c lot 9, 4-21s-36e	1000	3860
LEA COUNTY (South Eunice Field)—		
Conoco-California Co., E. M. Elliott 1-A-22, c sw sw 22-22s-37e	300	3552
LEA COUNTY (East Jal Field)—		
The Texas Co., W. T. Lanehart 1, c ne¼ 29-25s-37e	250	3308
LEA COUNTY (Monument Field)—		
Amerada Pet. Corp., State 4-O, c ne ne 30-19s-37e	1500	3970
State 1-T, c se sw 25-19s-36e	2500	3939
Barnsdall Oil Co., A. Cooper 5, c ne se 12-20s-36e	17,000	3890
Gulf Oil Corp., S. T. Burk 1, c ne ne 28-19-37e	*	4020
J. W. Smith 1, c se ne 34-19s-36e.	900	3970
D. A. Williams 1, c nw se 29-19s-37e	630	3935
Shell Pet. Corp., J. A. Foster 1, c se se 34-19s-36e	1600	3957
The Texas Co., J. R. Phillips 3, c sw nw 6-20s-37e	4000	3896
State 4-E, c ne sw 1-20s-36e	4000	3890
State 1-J, c ne sw 24-19s-36e	68	4050
Fred Turner Jr. et al, State 1-A, ne nw sw 2-20s-36e	1200	3898

*Failures; †Junked; ¶Million cu. ft. gas.

Wildcat Strike

GAINES COUNTY TO BE ADDED TO PRODUCTION LIST

WEEKLY STAFF REPORT

Midland.—Gaines County is destined to be added to the list of oil producing counties in the Permian Basin section of West Texas when production test is made early this week by Landreth Production Corporation's W. H. Kirk 1, SWc Section 22, Block A-21, PSL Survey. This wildcat lowered sufficient oil saturated lime between 4703 feet and 4789 feet to make a producer, based upon an analysis of the cores, and occupies a high structural position for the south central portion of the county. Seven-inch casing has been cemented at 4350 feet. It is located nine miles northwest of the Means field, and 11 miles south by east of a junked gasser near the town of Seminole. The hole is bottomed at 1518 feet sub-sea, and is probably 250 feet above the water level for the area that was established by a dry hole 4½ miles to the southeast.

In the event Landreth Production Corporation's prospect fulfills predictions, the area will immediately receive several new tests besides three required offsets, as a number of lease contracts expire within the next nine months. Kirk 1 is apparently on the same geological strike as W. T. Walsh, Harry Adams et al's S. J. Averitt 1, situated two miles northwest of Seminole, gasser junked at 4910 feet, or 1588 feet below sea level. Hearing was scheduled to have been held at Austin by the commission the past week on applications filed by Oklahoma independents to drill on sites within the townsite of Seminole. R. C. Quiett, Shawnee, applied for permit to drill Cobb 1, center of block 75, and G. H. Blankenship, Tulsa, is seeking well spacing exception to drill C. Cobb 1, near center of site 200 feet by 570 feet in Block 76. Drilling was slated to get underway late last week on Humble Oil & Refining Company's Wales Eubank 1, C SW SW Section 6, Block AX, PSL Survey, wildcat location listed last week for southwestern Gaines County and eight miles northwest of Kirk 1.

Three of the active tests in the Henderson area, situated immediately north of the Hendrick field, Winkler County, and possibly a continuation of the reef type of structure that made production history for the latter field some years ago, will reach decisive depths during the present week. Atlantic Oil Producing Company and Wahlenmaier Petroleum Corporation's Fred Leck 1-B, NWc Section 3, Block 26, PSL Survey, was drilling below 2960 feet after cementing seven-inch pipe with 225 sacks at 2655 feet. Humble Oil & Refining Company's J. B. Walton 2-C, SW NE SW Section 34, Block 74, PSL Survey, a northwest diagonal offset to the northern most prolific producer, was drilling below 2900 feet. Shell Petroleum Corporation's R. A. Leck 1, NEc SE¼ Section 32, Block 74, PSL Survey, situated more than one mile to the northwest of the above operations, was drilling near the 2700-foot level.

Initiative has been taken by Humble Oil & Refining Company to induce operators in the south extension of the Sayre field to voluntarily adopt a program of spacing wells 440 feet from property lines in order to restrict drilling to six wells to 80-acre units instead of continuing the practice of 10-acre spacings. Late completions in the original Sayre area, includes Magnolia Petroleum Company's Walton 23, NW SE SW Section 1 which gauged 1503 barrels oil during first 17 hours after 330-quart shot in sandy-lime at 2783-2950 feet. Storage was insufficient to permit 24-hour gauge. The same company's State-Walton 2, NWc Section 5, located one mile east of nearest production, has logged sufficient oil saturated formation in drilling to 2966 feet, or 47 feet sub-sea, to assure a commercial producer when unloaded and tested. Top of lime was logged at 2392 feet, with an elevation of 2919 feet.

Paul Osborn, Midland, Texas, et al have made location for L. Daugherty-Wentz 1, situated northeast of production in the Scarborough field and near the Texas-New Mexico line in Winkler County. Lease on the west 320 acres in Section 3, Block C-23, PSL Survey, was obtained from L. H. Wentz et al for the drilling of a 3400-foot test, and the latter retained a sliding scale over-riding royalty interest.

Lease purchases made lately by John I. Moore, San Angelo, and others in west central Crockett County and adjacent to the Pecos River will be followed by the drilling of a 2500-foot test, according to reports. Location has been made tentatively in Section 51, Block 1, I&GN Ry. Survey, about four miles northeast of Sheffield.

Potential rating of 475 barrels daily has been assigned to Stanolind Oil & Gas Company's . F. Cowden 1-B, NEc Section 14, Block 43, T&P Ry. Survey, T-2-S, fourth producer for the Foster pool, Ector County, after nitro shot in the upper section of the lime. Sulphur water was encountered at 4445-4456 feet with an elevation of 2970 feet, and the hole was plugged back to 4429 feet. This well extended production about 6000 feet to the northwest, and has been in process of completion for several weeks. It will require three offsets by independents.

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
GRAY COUNTY—		
Empire O&R Co., Cunningham 8....	713	3295
Gulf Oil Corp., E. G. Barrett 3.....	500	3282
Kewanee O&G Co., Morse 5-D.....	283	2593
Pampa Prod. Co., Harrah-Gulf 5....	371	3225
Shell Pet. Corp., Gethings 1-A.....	355	2742
HUTCHINSON COUNTY—		
Gulf-Panhandle Oil Co., Dial-Perkins 58	122	3039
Huber Pet. Co., Sanford 2.....¶25.7		2675
The Texas Co., T. D. Lewis 11.....	325	2980
MOORE COUNTY—		
W. J. & J. F. Moran, Lucky Tiger Oil Co.-Conoco 1.....	†	2744
WHEELER COUNTY—		
Ben G. Barnett et al, Stewart 2....¶5-260		2132
Skelly Oil Co., Johnson 18.....	189	2531

*Failures; †Junked; ¶Million cu. ft. gas.

MORE ACTIVITY

New strikes will increase McCamey district work

San Angelo.—New discovery and extensions scored in the McCamey district, Upton County, within the past week will create a vast amount of new activity in this comparatively shallow dolomite lime area. Separated from the main district by two dry holes, O. S. Brewer, Breckenridge, and Forest Smith, McCamey, have apparently established a new pool in completing Cordova Union et al 1, SEc NW¼ Section 19, Block 1, MK&T Ry. Survey, immediately north of Hurdle, pumped at rate of 340 barrels pipe line oil daily after using 2000 gallons acid in lime at 2072 feet. It is about 1½ miles east of nearest production, and occupies a high structural position, with the hole bottomed at 443 feet above sea level.

Falvey and Smith's A. A. Reese-Conoco 1, SWc W½ SW¼ Section 2, Block 3, MK&T Ry. Survey, shortened the gap between the old McCamey district and the Wentz-Shirk, or northeast extension area, by pumping 807 barrels of 30 gravity oil in 19 hours after treating lime at 2170-2183 feet with 2000 gallons of acid solution. Geo. E. Farley et al's A. M. Mayhew 1, C SW NE Section 8, GC&SF Ry. Survey, Block B, situated about 1¼ miles southeast of nearest production and about three miles south of Hurdle, logged favorable oil saturation below 2182 feet, but encountered sulphur water at 2357-2365 feet. It has an elevation of 2719 feet. The hole was plugged back to 2349 feet and treated with acid, but results were not promising for commercial production. J. E. Lucas, Breckenridge, et al's Cordova Union 1, NWc Section 21, MK&T Ry. Survey, Block 1, was eliminated as a probable producer last week in developing sulphur water at 2185-2188 feet. W. J. Rhodes and John C. Ward, who are also located at Breckenridge, and others' Phillips Lane 1, NWc 40-acre

lease, Section 3, GC&SF Ry. Survey, showed for a small pumper after acidizing at 2085 feet, but are drilling at 2108 feet for a lower pay zone.

In northwestern Fisher Count·· Tide Water Oil Compan·· and Merry Bros. & Perini, Inc.'s Mary Howard 3, near SWc NE Section 180, Block 2, H&TC Ry. Survey, is rated at 75 barrels daily from lime pay topped at 3640 feet after plugging back from sulphur water at 3701 feet to 3694 feet. The pay zone was shot with 20 quarts of nitro prior to bein·· acidized with 1000 gallons of acid solution. The partnership opened the area near the center of a large block of leases in Februarv, 1935, and now have three producers upon the discoverv site and one failure to the east. Having failed to attract a pipe line connection, they have made arrangements to market their current production and about 18,000 barrels of storage oil by building a four-mile, four-inch line to intercept Shell Pipe Line Corporation's West Texas-Mid-Continent trunk line.

Another high gravity oil strike for eastern Jones Countv loomed promising the past week when N. H. Martin & Son, Wichita Falls, et al's M. and E. B. Spurrier 1, W. C. Walker Survey, developed several hundred feet of oil in hole from sand at 1830-1831 feet. This wildcat is about three miles north of Nugent. Casing will be cemented above the sand for a production test.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ECTOR COUNTY (Foster Pool)—		
Stanolind, E. F. Cowden 1-B.....	475	4456
CROCKETT COUNTY—		
California Co., J. M. Shannon 7....	448	2570
CRANE COUNTY (McCamey Field)—		
Storey-Friebele & Duffy Oil Co., Cowden 10	156	2533
ECTOR COUNTY (North Cowden Field)—		
Atlantic O. P. Co.-Skelly Oil Co., A. W. Wight 1.....1014		4300
Landreth Prod. Corp., TP Land Trust 3-C	390	4280
Stanolind, J. M. Cowden 29.....	623	4285
GLASSCOCK COUNTY—		
M. B. Stanton et al, W. P. Edwards 1	*	983
HOWARD COUNTY—		
Merrick & Lamb, A. M. Bell 4.....	108	2812
JONES COUNTY—		
Thos. D. Humphrey, H. Dorsey 12..	538	2215
Jameson-Pollard & Forster, G. B. Triplett 1	*	2500
Knight & Ewing, J. D. Farrow 2...	150	1951
MENARD COUNTY—		
Wilcox O. & G. Co., Lee Murchison 1	*	3507
PECOS COUNTY (Masterson Field)—		
Davis & White, Fromme 1.....	*	1636
Garrett M. Smith et al, Masterson-Skelly 1	623	1490
PECOS COUNTY (Taylor-Link Field)—		
Prairie O. & G. Co.-Glenn Myers, H. McKenzie 1	*	1920
PECOS COUNTY (Torborg Field)—		
H. A. Baker et al, M. A. Smith 4..	201	352
Phil Broun et al, Tippett-Humble 14	63	515
Cardinal Oil Co., Smith-Cornell 8-A.	242	348
Stanolind, Tippett 20-B.....	65	494
PECOS COUNTY (Yates Field)—		
Cardinal Oil Co., M. A. Smith 1-C..	100	1742
WARD COUNTY—		
California Co., A. B. Gordon 21...1255		2525
FHE Oil Co., L. Richter 1-A.....	566	2570
Rio Bravo Oil Co., D. Olcott 4....1392		2530
Sinclair Prairie, J. C. Messer 1.....	594	2350
Superior Oil Co. (Cal.), J. H. Hughes 1	*	3120
UPTON COUNTY (McCamey Field)—		
O. S. Brewer & Forest Smith, Inc., Cordova Union 1.....	340	2072
Falvey & Smith, Reese-Conoco 1...1021		2183
WINKLER COUNTY (Sayre Field)—		
Humble, J. F. Howe 8.....1014		2980
Magnolia, J. B. Walton 23.....2100		2950
Shell, Hendrick-Walton 5-J.....	345	3025
Sinclair Prairie, H. E. Cummins 3-B	811	2994
Skelly Oil Co., L. Daugherty 1.....	350	3025
Tide Water, J. B. Walton 2.....1431		2945

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Hamilton Pet. Co., Abercrombie 41..	65	1177
W. T. Hutcheson et al, L. F. Wilson 1-C, sec 121.....	*	1451
Kittery Oil Co., W. H. Junker 1, blk 12	*	1317
C. B. Long et al, Turbeville 10, blk 156	12	1300
Perkins-Cullum Oil Co., Young-Langford 1, blk 127.....	*	2850
Riner & Massie, L. F. Wilson 1, sec 118	*	2241
Shappell Oil Co., C. E. Carter 1, sec 37	*	1204
CLAY COUNTY—		
Flynn Bros., John Barry 2, sec 2642.	*	840
Metzner & Burns, J. J. Taylor 1, blk 23	*	500
COOKE COUNTY—		
J. L. Flowers et al, V. E. Bush 1...	*	1393
Harrison & Dillard, Trew 5.....	150	1252
Pace Pet. Co., S. P. Aldredge 6....	71	1164
Peckham & Meadows, S. D. Meadors 2	*	1830
W. F. Russell et al, B. Payne 1....	*	1800
Sunray Oil Co.-Sinclair Prairie, McCall 1-A	†	4729
JACK COUNTY—		
Iron Mt. Oil Co., G. M. Helvey 1..	150	3025
Lewis Prod. Co., J. W. Birdwell 1..	15	3225
M. L. Woolfork et al, Chas. Henderson 1, blk 2	4	378
Martin Yell et al, Peterson 2, blk 2.	6	339
MONTAGUE COUNTY—		
A. H. Rosenberger et al, C. D. Meadors 1	*	2492
The Texas Co., Cunningham 9-B....	47	953
WICHITA COUNTY—		
Coleman & Coppock, G. R. Hoge 2, sec 39	*	844
Geo. W. Cooper et al, Waggoner Bros. 3, blk 14.....	20	1326
Fain-McGaha Oil Corp., S. P. Gibson 2, blk 302	*	2067
Floyd Pace et al, Foster-Allen 9, sec 1	6	468
Rathke Oil Co., Staniforth-The Texas Co. 1	*	904
Watkins 9, blk 46.....	*	903
H. L. Rugeley et al, Waggoner Est. 11, blk 148	76	1897
Sussex Oil Corp., Hines-Hearne 5, sec 11	*	1865
The Texas Co., Waggoner Est. 426, blk 148	51	1608
WILBARGER COUNTY—		
Lawson & Leavell, Waggoner Est. 7-A, sec 99	*	1450
Luther Webb et al, J. L. McCrary 1, sec 64	*	1985
Wheeler & Brashear, Waggoner Est. 1-B, sec 99	*	1430
YOUNG COUNTY—		
S. Alexander et al, W. B. Howard 6, sec 3401	100	917
L. T. Burns et al, G. B. Hamilton 1, sec 1393	*	974
Collins et al, I. E. Self 1.....	15	715
N. B. Dollins et al, J. A. Cole 1, sec 1465	10	722
B. C. Gilmore et al, Prideaux 1-A, blk 16	5	515
Murry R. Hart et al, L. McCluskey 1	*	370
Kimmell, Lee & Co., Culler 13, blk 19	*	581
Tommie Minnich et al, G. B. Hamilton 1, sec 3401.....	*	904
Pitzer & West, M. D. Harrell 1.....	*	4025
Premier Inv. Co., Ora Baze 1, sec 354	*	691
Solo Oil Co., O. B. Stowe 9, sec 2..	125	1066
The Texas Co., Jeffery 8-A, sec 42..	*	786

*Failures; †Junked; ¶Million cu. ft. gas.

WELDER TEST SHOWS
Wildcat strikes in Corpus trend offset failures

WEEKLY STAFF REPORT

Corpus Christi. — Wildcat successes offset a number of failures through the Corpus Christi trend of the South Texas Gulf Coastal area during the week. Several key wells recorded disappointing results to cut short anticipated heavy drilling campaigns.

Benedum and Trees' E. H. Welder 3, Section 19, three miles northeast of Sinton, drilled to 5728 feet where it showed considerable saturation. A drill stem test was run.

The drill stem test was not sufficiently successful to warrant completion and the well is drilling near 5900 feet. It will test the 6100-foot sand.

This well is 933 feet southwest of the same operators' Welder 2, which showed in sands at 5700 and 6100 feet and which was drilled to 7019 feet. It has been plugged back to 5027 feet preparatory to further testing.

Plymouth Oil Company is rigging up for Welder 2-D, located more than a mile south of the above wells. Portilla Oil Company's E. H. Welder, about a mile west and a little south of the Benedum and Trees tests failed to find producing sands at the expected levels and has been abandoned at 6109 feet.

The Plymouth field in the same county added three excellent producers during the week. There are seven active rigs in the proven area.

Taft field, same county, was extended ½-mile northwest in the 4000-foot sand by Cage Production Company's J. W. Mayo 1, which made 10 barrels of oil per hour through quarter-inch choke at 3962-76 feet.

Saxet Disappointments

Several disappointments tend to define the limits of the producing area of the 5800-foot Frio sand in the Saxet field, Nueces County. Conroe Drilling Company's Rand Morgan 1, just south of the west side of the deep area, showed 16 fourbles of salt water at 5836-42 feet. It is drilling ahead. Southern Minerals Corporation's Rand Morgan 2, Section 411, located about 1½ miles northwest of the deep production, tested salt water in the 5800-foot sand and has been abandoned at 6005 feet. There were several producers completed in this sand and several more are in process of completion.

Corpus Christi (Saxet Heights) field provided nothing interesting during the week other than its usual quota of producers in the small tract area in the residential district of this city.

M. F. Hurlburt et al's J. O. Phillips 1, 9½ miles southeast of Corpus Christi and on Flour Bluff, Nueces County, is going ahead near 7250 feet. It had a sand and shale series from 7183-7241 feet which carried an odor of oil and

a slight bit of gas. This was determined to be in the Frio formation. Several miles north of this well, Terminal Oil Products Company's Thurman 1 is drilling below 5000 feet.

Refugio County's wildcatting campaign showed a further increase with another important deep test being started. Benedum and Trees' R. H. Welder 1 in the Friedline Pasture, Juan Pabedano Survey, Abstract 49, and near Woodsboro, is scheduled for 7000 feet if production is not found shallower. Mills Bennett and Tide Water Oil Company are each drilling wildcats in this county. Several more are scheduled to be commenced within the next few days.

Refugio County Active

Field work, likewise, is on the uptrend in Refugio County. Eleven rigs are active in the Greta-Tomoconnor-Refugio group of fields, drilling for producing horizons in 4400-, 4900- and 5800-foot sands.

La Jita Corporation's W. E. Pope 1, two miles north of the Bentonville field and one mile west of the King Ranch gas area, but in Jim Wells County, developed 290 pounds gas pressure with 30 feet of oily mud on a 10-minute drill stem test at 4518-24 feet. It is drilling near 5000 feet.

In the main Bentonville field, Stanolind Oil & Gas Company's E. W. Raney 1, west offset to the discovery well, drilled to 5378 feet, set casing at 5364 feet, and is drilling plugs. Offsetting the discovery well on the north, same company missed the sand in J. E. Saim 1 and stopped at 5850 feet. Casing has been set at 4880 feet for tests above this level. Texon Royalty Company and Lucey Petroleum Corporation's Dodd 1, northwest offset to the discovery well, drilled to 6500 feet, set casing at 4725 feet, and perforated just below 4600 feet, where 750 feet of salt water developed. It is to make further tests.

Continental Oil Company is making rapid progress in Austin (Vandenberg) 1, heaving shale prospect near Seadrift in Calhoun County. The well is now below 5700 feet and likely will set a string of casing after reaching the 6000-foot level. The well has a string of pipe at 200 feet and another at 1520 feet.

SEEK FLANK OIL

Tests at Samfordyce are proving discouraging

Mission.—Continued efforts are being made to establish deeper production along the northeast edge of Samfordyce field, Hidalgo-Starr Counties. Several wells have encountered good showings, but thus far none of them have successfully developed production.

J. T. Barlow et al's M. F. de Chapa 1, drilled to 3200 feet, plugged back to 2800 feet, and is milling out preparatory to redrilling the sand at 2936-55 feet. Barnett Petroleum Company's A. E. Sheldon 3, after drilling to 3700 feet, ran an electric formation tester, and plugged back to test upper sands. G. W. Wheeler's F. Farias 2 is shut down at 3200 feet for orders. It showed some oil in the 2900-foot sand.

Deep tests are not getting successful results in Hidalgo-Willacy County district. Gulf States Oil Co.'s Engelman 3 in the Mestenas field is shut down after showing salt water through perforations at 6688-96 feet. Quintana Petroleum Corporation is cutting out drill pipe near 700 feet in Engelman 1, which has a total depth of 8904 feet.

In Mercedes field, Union Sulphur Company's American 8 is making a fourth production test through perforations at 7500 feet. American 9 drilled to 7600 feet, plugged back and set whipstock at 7318 feet. American 7 is jetting with gas after perforating casing at 7518-50 feet.

In Willacy County, Shell Petroleum Corporation's Yturria 1, projected to 9200 feet, is drilling below 5250 feet in the sidetracked hole.

California Company has drill pipe stuck at 8022 feet in Mrs. E. Garcia 1, Brooks County wildcat.

TOO MUCH DRILLING

Duval County operators want activity reduced

Laredo.—With wildcats continuing to establish prolific new producing areas in the Duval County sector of the Mirando district, operators are taking steps to reduce drilling operations. The rapid rate at which new producers are being completed has placed such a large volume of production on the market that pipe lines are taxed to handle the output.

While no definite announcements have been forthcoming, the general attitude during the past few weeks has been to stake only outside locations, leaving the complete lease development until a future date.

Several independent operators have joined in a move to secure higher allowables for wells from this district. It is their contention that the proration of wells to 30 and 40 barrels apiece is unfair when wells in the adjoining Corpus Christi sector are in many cases allowed considerably more than 100 barrels per well. Both are producing a similar type of crude.

But the wildcatting orgy still goes on. One field of apparently large proportions was established during the week and three wildcats showed sufficiently to indicate new fields or major extensions to present proven areas.

Mills Bennett Production Company's W. R. Peters 2, 990 feet out of the southwest corner of Section 178, and in the North Kohler district, flowed initially at the rate of 15 barrels of oil per hour through ½-inch choke from Mirando sand at 2619-33 feet. The well is several locations east of Windsor Oil Company's W. R. Peters 3-B, recently completed in the same sand as a gasser, spraying oil. The plan of development, it is announced, will be for the operation of one rig jointly by the Windsor Oil Company and Mills Bennett. The latter operator has commenced a south offset to the new oil producer. Upon the completion of that well, the rig will be skidded to the Windsor lease for a well on that property.

A new field for the extreme southwestern portion of Duval County seemed probable June 19 with casing being set in Rogers and Rogers' S. De Pena 1. The well is in sand at 2839-51 feet. It failed to get a successful drill stem test but cores were sufficiently saturated to indicate oil production. The well is located in the central portion of the Pena tract, El Mesquite Trinidad Vela Grant, Share 4, and is about 3½ miles southeast of the Cole field. It is in the immediate vicinity of three dry holes.

New Field Looms

A new Mirando sand field four miles east of Loma Novia field, seemed probable with C. G. Glasscock preparing to set casing in Milano Land and Gardens Company 3, northeast corner Section 82. The well had a sand and sandy shale section at 3291-98 feet which carried considerable saturation.

One mile west of production in the Seven Sisters District, Dulce Oil Company and Harvey and Henderson's R. R. Hagist 1, block 13, Section 271, topped Government Wells sand and found saturation to 2429 feet, but went into salt water below that level. A drill stem test at 2416-29 feet developed three joints of oil and mud with a puff of gas. If it fails to find production at lower levels, the well will be plugged and completed in this sand.

Conservative Oil Company's Duval County Ranch Company 1, SE NW Section 51, located about three miles southeast of the Colmena gas field and 3½ miles west of the Sarnosa field, found saturation in a sand of the Cole series, and preparations are being made for completion. It had sand at 1533-41 feet, sand and shale streaks at 1541-51½ feet, all carrying oil, followed by sand carrying salt water at 1551½-3 feet. A drill stem test for 15 minutes through ⅜-inch chokes developed 550 feet of oil and 200 feet of salt water.

SATURATION CORED

Well near Pearsall gets 40 feet of Chalk sand

San Antonio.—Termo Oil Company of Texas found about 40 feet of heavy saturation in the upper Austin chalk in J. L. Arp 1, one mile west of production in Pearsall field, Frio County. The well was drilling ahead at 5583 feet late in the week, and likely will set casing after a little more hole is made. It has an elevation of 531 feet, derrick floor, and encountered the Austin chalk at 5502 feet.

This well is in the southeast corner of a 102-acre tract in the S. Blain Survey and is 330 feet from the Leona River. As a result, it is highly probable that this production will be extended southwest of this river.

Bay Oil Corporation's National Bank of Commerce 1, about 12 miles southwest of Pearsall field, but in Zavalla County, is below 6200 feet in Austin chalk, having found a series of oil shows in that formation from 5806 feet to the total depth.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BEXAR COUNTY—		
Shadrock Oil Co., Juan Barrigan 7, John S. Simpson sur 59 (Von Ormy)	3	700
W. Kohler 3, J. M. Baerrera sur No. 58 (Von Ormy)	*	654
DUVAL COUNTY—		
Mills Bennett Prod Co., W. R. Peteres 2, 990 ft sl & wl of sur 178	430	2633
Bridwell Oil Co., Wm. Hubberd 10-A, sec 71, (Loma Novia)	460	2786
Wm. Hubberd 12C, sec 75, (Loma Novia)	250	2610
Cabildo Oil Prop, Inc., C. S. Tinney 2, 650 ft elev, 825 ft sl of sur 8	*	3598
Rodney Delange, L. B. Moody 4, sec 76 (Loma Novia)	195	2756
Duval Oil Corp, W. K. Hoffman 1-A sec 118	*	2764
W. K. Hoffman 2, sec 118 (Hoffman)	150	2902
W. K. Hoffman 4, sec 118 (Hoffman)	300	2853
Highland Oil Co., Wm. Hubberd 13, sec 75 (Loma Novia)	125	2609
Humble, R. Serna, Jr., 15A, sec 384 (Seven Sisters)	875	2483
T. D. Smith 11, sec 382 (Seven Sisters)	480	2439
M. Vela 9, sec 42 (Loma Novia)	440	2707
Magnolia, DCRC 4, sec 95 (Piedra Lumbre)	288	1961
C. W. Hahl 36, sec 67 (Loma Novia)	231	2590
C. W. Hahl, sec 67 (Loma Novia)	435	2683
Navarro Oil Co., J. F. Welder heirs 6, sec 383 (Seven Sisters)	575	2477
Pan American Prod. Co., J. F. Welder heirs 3C, sec 383 (Seven Sisters)	465	2465
J. F. Welder heirs 4-A, sec 381 (Seven Sisters)	*	2452
Reliance O & R Corp., Drummond 4, sec 308 (Seven Sisters)	1095	2509
Shell Pet. Corp., Bishop Cattle Co. 3, sec 59, (Loma Novia)	255	2560
M. C. Hubberd 30, sec 77, (Loma Novia)	250	2753
V. Mendoza 6, sec 68 (Loma Novia)	*	lcn.
Shield, Fred, A. Hazlewood 1, sec 110 (Seven Sisters)	175	2504
Standard of Kansas, W. K. Hoffman 8, sec 118 (Hoffman)	375	2897
The Texas Co. & Ohio Fuel, DCRC 2B, 330 ft sl, 2800 ft wl sur 193..	*	2716
The Texas Co., Hugo Wendt 41, sec 68 (Loma Novia)	162	2659
Westheimer & Daube, Z. Campos 13, sec 224 (Seven Sisters)	462	2222
GOLIAD COUNTY—		
Magnolia, Welden & Lackey 2, J. Gomez sur (N. Pettus)	624	3689
McMULLEN COUNTY—		
Whisenant & Trenchard, Roos Bros. 1-A, 990 ft nl & el of sec 60	*	3073
NUECES COUNTY—		
W. W. Chapman, Trustee, Morgan-Clark 1, B. S. & F. sur 405 (Saxet)	695	5851
Corpus Christi Refg. Corp., Fee 2, J. H. Sigler sur (Saxet Heights)	595	4070
J. K. Culton, N. J. Cantwell 2, Villareal gr (Saxet Heights)	700	4087
Tom Graham, Harmon-Flood, blks 4 & 5, Ellendale Gardens 1 (Saxet Heights)	745	4081
Priour 1-B, Villareal gr (Saxet Heights)	625	4073
Great States Oil Co., F. J. Smith 1, G. C. & S. F. sur 315 (Saxet)	375	4432
Morgan Gulf & Great States, Rand Morgan 3A, BS&F sur 403 (Saxet)	475	5829
Southern Minerals Corp., Rand Morgan 2, 330 ft nl, center el & wl of lot 42, Artemus Roberts subd AB&M sur 411 (Saxet)	*	6005
F. J. Smith 6, blk 4, H. B. Sheppard Farm Lots (Saxet)	600	4430
REFUGIO COUNTY—		
D. & D. Oil Co., Fannie Heard 3, blk 17, Refugio Town tract (Refugio)	200	4925
SAN PATRICIO COUNTY—		
Cage Prod. Co., Mayo 1, 150 ft sl & wl of 60-ac in J. Fessenden sur	480	3976
Humble, W. M. Belvey 2, blk 8, sec 35, fourth add to Taft Farm Lands (Plymouth)	590	5645
Plymouth Oil Co., E. H. Welder 47C, sec 49 Welder Ranch subd (Plymouth)	350	5657
Portilla Drlg. Co., Eliza H. Welder 1, 2333 ft nl, 466 ft el, sec 5, Welder Ranch subd	*	6109
STARR COUNTY—		
Fech Oil Co., Frank Doyno 9, blk 4, sh 77-A, porc 81	110	1445
Porter & Pickens, Garcia Lnd. & Cattle 2C, lot 1, w½, porc 100, perf 2783-95	145	2810
VICTORIA COUNTY—		
American Liberty Oil Co., Antone Prybil 4, R. Manchola gr (Coleto Creek)	*	2918
Costa Oil Co., S. E. Wright 1, J. M. Brownson sur (Placedo), owdd, otd 4817, perf 5290-5320	¶20	5594
Gulf Prod. Co., G. Keeran et al 8, DeLeon sur (Keeran), perf 5895-5900	350	6444
E. L. Smith, Henderson-Pickering 1-B, lot 94, SA&MB sur (Placedo)	450	4785
WEBB COUNTY—		
Mills Bennett, Maria L. Lopez 9, sec 112 (Lopez)	630	2235
Maria L. Lopez 10, sec 112 (Lopez)	565	2224
Superior Oil Co., W. C. Billings 9, sec 109 (Lopez)	706	2259
ZAPATA COUNTY—		
George Buck, A. P. Haynes 1, blk 4, Alice D Haynes subd, Comitas & Villa grants (Comitas)	10	904
Clover O. & G. Co., A. P. Haynes 14, blk 7, Haynes subd, Comitas & Villa gr (Comitas)	35	895
R. A. Mitchell, P. Bustamante 1, 1455 ft swl, 1015 ft nwl, share 32, Fansler partition, Comitas gr	*	1000
Upchurch & McKay, Haynes 1, blk 7, A. D. Haynes subd, Comitas & Villa gr (Comitas)	35	987
Haynes 3, sec 7, Haynes subd, Comitas & Villa gr (Comitas)	45	856

*Failures; †Junked; ¶Million cu. ft. gas.

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DISTRESS PRICE OFFERED FOR CRUDE TURNED DOWN

WEEKLY STAFF REPORT

Mount Pleasant, Texas.—Prospective purchasers of Talco crude at distress prices failed to arouse interest among operators when a canvass was made the past week for 1000 barrels daily to be delivered by tank cars to an independent refining concern with facilities for cracking the low gravity crude. The offer was 50 cents per barrel, or 10 cents below the price posting of Humble Oil & Refining Company and Independent Crude Oil Trading Company. The latter is the only general buyer in the field, and has a market for 1500 barrels daily with a refinery at Houston.

Drilling activity at Talco continues to expand, with possibilities of 50 rotary rigs being in service within 30 days. There are nine flowing producers in the field. Four additional tests drilled to the Paluxy oil sand near the 4200-foot level the past week. Approximately 200 permits to drill have been approved by the railroad commission on leases and drilling sites in Titus and Franklin Counties, and a large number of new permits are reported each week. Only three majors have participated in the development work to date. A majority of the independent holders of permits to drill are adopting East Texas field tactics in financing wells, including the sale of oil payments at sharp discounts.

Large Natural Flow

The outstanding completion for the week was credited to Lucey Petroleum Company et al's W. N. Crawford 1, SWc of a 25.23-acre lease, O. James Survey, Franklin County, with a natural flow of 61 barrels of 24.5 gravity oil per hour through open 2½-inch tubing from the Paluxy zone at 4158-4300 feet. The hole is bottomed at 3930 feet sub sea, or one foot lower than the company's Crawford 6, first completion on the lease and the most productive well in the field. Operations have been started on Crawford 2, located on the east side of the property, and offsetting J. G. Puterbaugh and Blaylock's 25-acre lease. Humble Oil & Refining Company's Hughes-King 2, a south offset to the new producer on the Crawford tract, has started up. Lucey Petroleum Company et al have permits to drill 12 wells on the Crawford lease, but plan to drill only five or six.

Extension Possible

Extension of the productive limits of the Talco field about 1¼ miles to the southwest and deeper into Franklin County looked promising the past week when Earl Bateman Drilling Company and Rovenger's Eula Phillips 1, NWc of 38½-acre lease, Wm. Bridwell Survey, logged Georgetown lime at 3510 feet, or 3153 feet sub sea. The late completion on the Crawford tract logged top of lime at 3098 feet sub sea. Phillips 1 was due to reach the Paluxy zone late last week.

Independents hold comparatively little lease protection to the east of producing wells in Titus County, but are well fortified to the southwest of production in Franklin County and favorably situated along the fault plane. This accounts for the spread of operations to the southwest, and it is quite probable that the extent of production in this direction will be established within a few months. Operators are counting on the producing area extending in a general east to west direction for about 10 miles, and possibly averaging more than one mile in width.

Humble Oil & Refining Company has

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assembled two heavy duty rotaries to take part in its forthcoming major drilling program that is inevitable because of offsets forced by neighbors. Reports indicate that this company is making preparations to drill a deep test to try for production in the upper or lower Glen Rose section of the Trinity series, or the same zones that yield prolific high gravity oil wells in the Rodessa field.

Later gauge given Haynes B. Ownby Drilling Company's F. Jones 1, C Lot 6, Block 16, Talco townsite's first producer, credits the well with flowing 15 barrels hourly through tubing from Paluxy sand series at 4264-4347 feet.

Humble Oil & Refining Company has filed suit in 98th District Court at Austin against the railroad commission and R. R. and B. C. Morrison, Dallas, to force the cancellation of permit given the latter last April to drill LaVelle Coney 1, situated near center of 1¾-acre lease, Charlton Payne Survey, Titus County. The suit is based upon the Rule 37 spacing regulations, and is the first court action attempted against development of small sites in the Talco area.

MANY PUMPERS

20 new East Texas wells fail to flow naturally

Tyler.—Routine drilling in the East Texas field involves a large percentage of activity on leases that afford poor sand conditions and are not capable of yielding flowing production. The field added 54 producers and two failures on the current weekly report, and 20 of the new wells were completed by pumping, swabbing or with the aid of gas-lift equipment. Due to bottom-hole water hazard 21 of these new producers penetrated the Woodbine sand from one to five feet, and 13 were credited with having drilled or cored only about one foot into the oil pay as a safeguard against early appearance of salt water.

Field activity has tapered off during the past two weeks. The current drilling report accounts for 95 active tests, or a total of 220 operations, which includes idle tests, locations, derricks and rigs. Approval of a large number of additional permits and exceptions to the well spacing rules by the Commission the past week will be followed by a pickup on field work. However, a number of independents have mapped ambitious drilling programs on their leases in the new Talco field, centering upon Titus and Franklin counties, and are forced through limited finances to cut down on their drilling in the East Texas field.

Sinclair Prairie Oil Company's M. T. Cole 59, located on the west line of the S. Brooks Survey and an east offset to a small producer on the west edge of production in Gregg County, tested salt water in Woodbine sand topped at 3629 feet, or 3322 feet sub sea. It was deepened to Georgetown lime at 3910-3924 feet for geological information, then abandoned.

EAST TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
R. E. Campbell, Tr., et al Kangerga 3 (15-ac)	90	3566
W. E. Duffy et al, A. Smith 1 (16¼-ac)	3000	3806
Gulf Oil Corp., Mayfield 8-D (53.9-ac)	6500	3649
H. & S. Oil Co. (was T. R. L. Silvey), H. W. Coates 1 (50-ac)	75	3566
Humble, M. C. Thompson 13 (126½-ac)	6500	3615
Hunt Prod. Co., Bradford 10-F (170.1-ac)	350	3592
Jackson-Wise & Snedden, J. H. Stewart 5 (27½-ac)	5000	3782
M. H. & Jim McMurrey, Dickerson 1-B	160	3600
R. J. McMurrey et al, H. Roberson 10 (136.8-ac)	3000	3800
Magnolia, W. B. Kee 4 (56.41-ac)	3000	3782
Marathon, Clay 19 (113-ac)	240	3671
Merry Bros. & Perini, Inc., A. Kelly 3 (90-ac)	5000	3661
Pet. Marketing Corp., Graham 3-A (37.21-ac)	1500	3682
Sinclair Prairie, Mayfield 67-A (374.74-ac)	3600	3790
J. Beal Sneed Oil Co., DeLoach-Bond 1 (750-ac)	*	3680
Texas Canadian Oil Corp., F. A. Keel 5 (62-ac)	750	3653
Texas Gulf Pet. Co., Hodnett-Melton 10 (134.84-ac)	5000	3718
KILGORE AREA—		
J. G. Beard et al, Elder Bros. 9 (72.16-ac)	200	3568
W. W. Bradley et al, Mt. Moriah Church 1 (3/10-ac)	300	3746
A. S. Genecov & Roosth, R. O. Dumas-Potter 1, blk 134	1000	3559
Young-Ragsdale 1, blk 137	1500	3547
Gen'l American Oil Co. (was Hurtle), Wm. Sexton 3 (100-ac)	250	3631
Wm. Sexton 4 (100-ac)	400	3646
Gulf, G. W. Culver 29 (142.71-ac)	4000	3552
S. Hilburn 86-B (110.17-ac)	5600	3580
Ed. Harris Oil Co. (was G. Guthrie), G. H. Morris 1 (34.01-ac)	500	3716
Humble, S. S. Laird 81-B (568.63-ac)	700	3546
Hunter & Rowe, C. L. Still 9 (91.57-ac)	480	3551
W. F. Nenney et al, M. Strong-Scott 1 (6.56-ac)	7000	3615
B. F. Phillips et al, H. B. Reynolds-Shell 1 (115-ac)	35	3604
J. W. Russell et al, R. Lacy 2 (267-ac)	600	3467
Sinclair Prairie, M. T. Cole 59 (666-ac)	*	3924
M. Kennedy 3-C (20.2-ac)	240	3645
M. Kennedy 4-C (20.2-ac)	240	3650
Sun-Seaboard Oil Corp., Pentecost 13 (131½-ac)	9400	3620
R. L. Wheelock-Collins, D. Wells 21 (120-ac)	2000	3688
LONGVIEW AREA—		
Arkansas F.O. Co., Annie Lee 11 (67.19-ac)	7000	3632
Bert Fields et al, E. L. Walker 12 (140-ac)	3000	3674
Gulf, M. O. Sheppard 42 (335-ac)	5000	3501
E. C. Johnston et al, C. F. Williams 4 (44-ac)	2500	3707
Magnolia, H. Hampton 21 (153.33-ac)	8000	3681
H. B. Ownby Drl. Co., E. Cabbiness 6 (75.77-ac)	160	3596
Pete H. Pewitt et al, J. H. Sobey 1-A (23-ac)	1000	3731
L. A. Williford 2 (133-ac)	3000	3734
J. D. Reynolds et al, L. B. Miller-Humble 2 (104-ac)	500	3762
L. B. Miller-Humble 3 (104-ac)	1000	3754
P. F. Rutledge-C. W. Boller, P. Todd 8 (155-ac)	3500	3672
Stanolind, Adrian-McCrary 11 (65.64-ac)	5400	3518
Pet. Hopkins 16 (100-ac)	7300	3579
J. G. McGrede 8 (52.9-ac)	9000	3573
Sun, A. Tooke 12-B (80-ac)	7800	3587
Tide Water-Buttram Pet. Co., Nicholson 20 (800-ac)	4000	3655
Tide Water-Leon Russ, Flewellen 20 (200-ac)	4500	3663
Tide Water-Stanolind, A. J. Tuttle 13 (95.8-ac)	7500	3575
C. R. Trail et al, C. T. Shelton 3 (42.14-ac)	40	3739
J. A. Woods et al, J. H. Sobey 1 (20-ac)	1200	3715
HENDERSON COUNTY (Cayuga Field)—		
Cortex Pet. Co., M. V. Wathen 1 (37-ac)	3000	4097
FRANKLIN COUNTY (Talco Field)—		
Lucey Pet. Co. et al, W. N. Crawford 2 (25.23-ac)	1500	4300
TITUS COUNTY (Talco Field)—		
H. B. Ownby Drl. Co., F. Jones 1, lot 6, blk 16	360	4347
R. B. Sanders-Murchison (Nemo Oil Co.), Talco School 1 (5-ac)	300	4340
VAN ZANDT COUNTY (Van Field)—		
C. L. Graham-W. J. Aniker et al, W. E. Price 1 (3¾-ac)	*	3055
RUSK COUNTY—		
McCallum et al, E. C. Gary 1	*	3750

*Failures; †Junked; ¶Million cu. ft. gas.

TALCO HEARING

Austin.—Hearing on the Talco Field, Titus and Franklin counties, has been scheduled by the Texas Railroad Commission for July 15 at Paris, Texas. The hearing was called for May 29, but recessed at the request of operators who declared they were unprepared. The pricipal purpose of the hearing will be to fix rules for the spacing, drilling, completion of wells.

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Three New Fields

NOME, HAWKINSVILLE AND ANGLETON ARE PROMISING

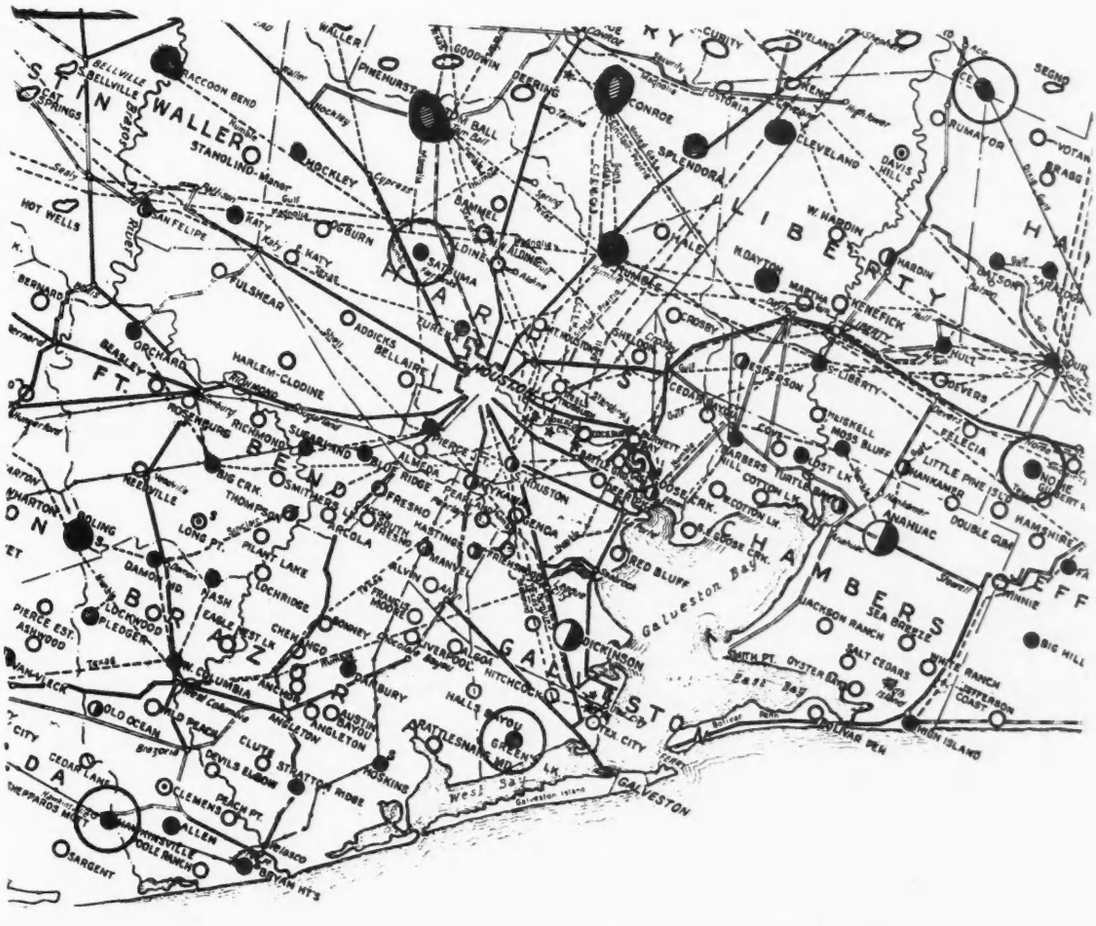
Houston.—Possibilities of three new oil fields were indicated the past week on the Texas Gulf Coast. Sun Oil Company's Craig 1, on the east flank of Hawkinsville dome, Matagorda County, showed commercial oil on a drill stem test. Shell Petroleum Corporation's Carpenter 1, Nome prospect, Jefferson County, encountered oil sand that showed favorably on a drill stem test, and Texas Gulf Producing Company's Sparks 1, Angleton prospect, Brazoria County, registered 20 ohms resistivity and 100 millivolts porosity on an electrical logging device.

Shell Petroleum Corporation drilled Carpenter 1, M. Pevito Survey, Jefferson County, to 6022 feet in shale and made a drill stem test June 16. With the testing tool open 11 minutes, the well showed 20 stands of 26 gravity oil from 6005 to 6023 feet. The working pressure was 80 pounds, while the oil flowed through two quarter-inch chokes. This wildcat is the first test on Nome prospect to show commercial oil from the Marginulina sands.

After making the drill stem test, Shell Petroleum Corporation ran an electrical logging device that showed oil sands from 6013 to 6021 feet and a shale break from 6021 to 6023 feet. June 19 the crew was coring ahead below 6032 feet in sandy shale and will carry the hole down to the Frio formation, which showed oil in other test drilled in the vicinity. After drilling to the Frio formation, it is likely casing will be set and all showings from the Marginulina formation down tested. Carpenter 1 has had showings of gas at 5193 feet and at 5900 feet. It is reported to be over 100 feet higher than two other wells drilled west and south of Carpenter 1 by Sun Oil Company.

Nome prospect is a geophysical prospect worked with torsion balance and reflection seismograph by Sun Oil Company and Shell Petroleum Corporation. Shell Petroleum Corporation and Sun Oil Company control approximately 10,000 acres in the area with The Texas Company and Humble Oil & Refining Company holding scattered tracts.

Sun Oil Company's Paggi 1, T. & N. O. Survey, No. 32, yielded two joints of 28 gravity oil but very little gas from 6003 to 6023 feet on a drill stem test, and failed to produce when casing was run and screen set, only giving slight shows of oil after swabbing dry. The hole was then carried to 7277 feet, finding no more shows, and was abandoned in December, 1933. About one mile southwest of Sun Oil Company's Paggi 1, The Texas Company's J. R. Bevil 1, Burr & Caswell Survey No. 1, quit at 6402 feet, December, 1933, after encountering slight show of oil at 6182 to 6194 feet. Sun Oil Company then



Circled areas at the extreme right and left indicate the Nome and Hawkinsville fields, discovered during the past week. All five of the circled regions have been proved productive since June 1, 1936.

drilled Long 1, J. Blair Survey, one mile northwest of Paggi 1. The test was spudded in December, 1933, and stopped after drilling to 9045 feet, in April, 1935. It yielded some oil and showed gas pressure as high as 750 pounds on several drill stem tests between 5963 and 6072 feet. Also several small shows were encountered around 6400 feet. A long fishing job was encountered at 7138 feet. After drilling to 8297 feet the well tried to blow out and another long fishing job delayed operation. Salt water was then swabbed from 6000 feet. The casing pressure was 800 pounds; tubing pressure was 1000 pounds. Several settings were made from 8407 to 8697 feet. But after each setting was made salt water was swabbed. Operators finally abandoned the hole.

Shell Petroleum Corporation's Carpenter 1 is approximately one and a quarter miles east of Sun Oil Company's Long 1 and 4000 feet north of Sun's Paggi 1. It is also approximately 7500 feet southeast of the town of Nome. It is located 3400 feet from the west line and 450 feet from the south line of lease in the M. Pevito Survey. The derrick elevation is 45 feet while the ground elevation is 35 feet. Discorbis formation was encountered at 5380 feet, Heterostegina at 5735 feet and the Marginulina at 5922 feet.

Hawkinsville Test Shows Oil

On the east flank of Hawkinsville dome, Matagorda County, Sun Oil Company's Craig 1 is classed as the discovery well of a new field. Heretofore, Hawkinsville dome has been classed as a non-productive salt dome. Sun Oil Company's Craig 1, T. Williams Survey, was drilled to 6326 feet in heaving shale and before plugging back and perforating 9⅝-inch casing with 40 shots from 5150 to 5175 feet. A testing tool was left open for two hours and the well started flowing oil. For 20 hours it flowed 16 barrels of 30.4 gravity oil per hour through a quarter-inch choke on top and bottom of the drill stem. After flowing for 20 hours the well sanded up and the drill stem was pulled in order to making a screen setting. Upon pulling the drill stem it was found to contain 23 stands of salt water. June 19, the operators were waiting on cement to set after pumping in 100 sacks of cement under a 2500 pound pressure.

Craig 1 cratered at 190 feet and the derrick was skidded 100 feet southeast and spudded in again the latter part of October, 1935. Cap rock was encountered at 628 feet and salt at 677 feet, where casing was set. When drilling was resumed, the bit passed through the salt at 1058 feet, which proved that the Hawkinsville dome had a salt overhang. At 5999 feet, heaving shale was encountered which forced the operators to plug back. After plugging back and side tracking, seven-inch casing string was cemented at 5894 feet. At 6218 feet a short string of 9⅝-inch casing was cemented on to the seven-inch casing. Casing was then perforated at 5340 to 5360 feet and the hole swabbed dry. Casing was again perforated with 40 shots from 5040 to 5095 feet and was also swabbed dry. On the third attempt the casing was perforated from 5150 to 5175 feet and Craig 1 responded with a flow of oil through the drill stem.

The Hawkinsville dome was discovered by reflection seismograph by Gulf Production Company and was later proved as a dome by Gulf Production Company's Craig 1, T. Williams Survey, when the well encountered cap rock. After the field was discovered as a dome over a dozen and a half tests were drilled but all were dry.

In 1935, Sun Oil Company leased over 4500 acres around the flanks of the dome. Sun Oil Company's Craig 1 is 154 feet west from the north corner along the northwest line of lease and survey in the T. Williams Survey, Matagorda County.

Wildcat Shows Oil

The third important strike on the Texas Gulf Coast was Texas Gulf Producing Company's Sparks 1 on Angleton prospect in Brazoria County. An electrical logging device was run to 5850 feet and showed possible producing sands in the Miocene formation. At one time the well was reported abandoned at 7525 feet in the Oligocene formation, but since Sun Oil Company brought in Hughes 1, Green's Lake, Galveston County, for a commercial producer from the basal Pliocene formation it prompted Texas Gulf Producing Company to go back in the hole and make an electrical survey of the Miocene formation.

The electrical logging device showed oil sands from 5675 to 5705 feet and a sand with a good showing at 5850 feet. The device showed 20 ohms resisitivity and 100 millivolts porosity in the sands from 5675 to 5705 feet. June 19 the operators were waiting on cement to set after running a string of five-inch casing to 5872 feet. The casing will be perforated and a production test made.

While drilling the widcat to 7525 feet salt water sand was cored from 3950 to 3951 feet and from 6227 to 6237 feet. Discorbis was encountered at 6650 feet and the Heterostegina at 7397 feet. The hole was carried on down to the contract depth and temporarily shut down.

The Angleton prospect has been worked with geophysical instruments by nearly all major oil companies, and a trend leasing play started from Angleton to Bonney, approximately 12 miles distant. Leases in this area sold as high as $75 per acre base. In the Angleton-Chenango area, two independent oil operators acquired a 5000-acre block and sold spreads to several major oil companies. The major companies which are in the play are: Humble Oil & Refining Company; Sun Oil Company; Gulf Oil Corporation; Magnolia Petroleum Company and The Texas Company. Since Texas Gulf Producing Company received a showing of oil in Sparks 1 the area no doubt will see exciting development the last six months of 1936.

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
AMELIA—		
Humble, Quinn 2	360	6733
ANAHUAC—		
Humble, Tyrrell 8	672	7082
Middleton 17	432	7235
Middleton 21	*	7150
BLUE RIDGE—		
H. G. Frost, Robinson 1	*	3660
CONROE—		
Malta Oil Co., Falvey 24	540	5078
DICKINSON—		
Ken-Ben Oil Co., Maco Stewart 1	590	8689
Humble, Bayou Development Co., B-3	*	8370
Magle 3	912	7994
ESPERSON—		
General Crude, Davis 14 (wo)	325	3573
HULL—		
Gulf, Morris-Phillips 26	500	4480
MANVEL—		
Texas Co., Smith 2	100	4060
SUGAR LAND—		
Rogers Oil Co., Dealherage 1	288	3801
THOMPSON—		
Naylor et al, Gehr 8	720	5353
TOMBALL—		
Humble, Juergens 1-B	276	5573
Texas Co., Lewis 2	¶2	5573
WITHERS—		
Texas Co., Pierce Estate 1-B	¶2	5520
Pierce Estate C-6	432	5567
Pierce Estate C-7	216	5565
JEFFERSON COUNTY—		
H. J. DeArmand, State National Bank 1, ne of Amelia, J. Bigner sur	*	7021
Magnolia Pet. Co., Funchess 1, Cheek area, H. & T. B. sur No. 16	*	9098
POLK COUNTY—		
Hawkeye Petroleum Co., Harder 1, 2 mi nw of Livingston field, A. Viesca sur	*	4182
WHARTON COUNTY—		
Sterling, Genzer 1, East Bernard prospect, J. Scott sur	*	7871

*Failures; †Junked; ¶Million cu. ft. gas.

While drilling the widcat to 7525 feet salt water sand was cored from 3950 to 3951 feet and from 6227 to 6237 feet. Discorbis was encountered at 6650 feet and the Heterostegina at 7397 feet. The hole was carried on down to the contract depth and temporarily shut down.

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Green's Lake New Locations

Two new locations were made in the Green's Lake field, Galveston County, during the past week by Sun Oil Company after discovering the field two weeks ago. Sun Oil Company's Hughes 2 is 1991 feet from the northwest line and 279 feet from the northeast line and 933 feet northeast of the discovery well in the W. C. M. Baker Survey.

Sun Oil Company's Houston Farms Development Company 1 is in the D. Buckly Survey, abstract 29. It is 466 feet out of the northeast corner of the southwest half of a 938-acre tract. It is two and a half miles southeast of Hughes 1, the discovery well. Humble Oil & Refining Company has under lease the northeast half of the 938-acre tract.

Sun Oil Company's Hughes 1 started showing salt water again last week and was killed for the second time. The well has been producing oil at the rate of 416 barrels daily but the salt water content increased to 10 percent and forced the operators to attempt another cementing job. Over 200 sacks of cement were pumped into the hole under a 1750 pound pressure and at the end of the week the operators were waiting on cement to set before making another production test.

Anahuac Defined and Extended

Anahuac field, Chambers County, was extended to the east last week when Humble Oil & Refining Company's Middleton 17, H. & T. C. Survey, No. 60, came in for 18 barrels of pipe line oil over 80 feet below the water level for the field. The well is producing from the Marginulina sand at 7208 to 7235 feet. The well came in flowing 34.6 gravity oil at the rate of 18 barrels per hour through a quarter-inch choke. Tubing pressure was 350 pounds; casing pressure was 650 pounds. A drill stem test the previous week from 7222 to 7235 feet showed 120 feet of clean oil and then seven-inch casing was set at 7208 feet. After swabbing the well for some time the well came in flowing commercial oil.

Humble Oil & Refining Company's

Lord 2, north offset to Lord 1, H. & T. C. Survey, Section 50, was waiting on cement to set at the end of the week after drilling to 7129 feet in shale. The hole was plugged back and seven-inch casing was set at 6800 feet. If this well proves a commercial producer it will be the fifth Marginulina producer on the east side of the field.

On the northwest side of the Anahuac field and on the newly acquired 486 acres, which was taken from R. A. Mason and Glenn H. McCarthy, Humble Oil & Refining Company was preparing to complete White 1-B. This will be the first oil production for this new lease. White 1-B was drilled to 7096 feet in oil sand after topping the sand at 7069 feet. Seven-inch casing was set at 7063 feet. The operators will drill plug over the week end and make a production test.

Humble Oil & Refining Company was also preparing to complete White 11, J. McGehey Survey, last week at 7082 feet. Top of the oil sand was found at 7007 feet.

The Anahuac field has evidently been defined in the westerly direction, as Humble Oil & Refining Company abandoned Middleton 21 last week at 7150 feet. An oil sand was found at 7145 feet but after setting casing and making a production test the well flowed salt water. Middleton 21 is 466 feet south of the north line and 491 feet west or the east line of H. & T. C. Survey, Section 56.

Dickinson Extension and Failure

The southwest portion of the Dickinson field, Galveston County, received its second oil producer, which also extended the producing limits of the field over 660 feet south. Credit with extending the field went to Ken-Ben Oil Company's Maco Stewart 1, W. K. Wilson Survey, which flowed 590 barrels of oil through a quarter-inch choke with a tubing pressure of 1175 pounds and a casing pressure of 1675 pounds from 8560 feet. The hole was drilled to 8686 feet and casing was perforated with 39 shots from 8547 to 8560 feet.

Humble Oil & Refining Company defined the Dickinson field in the southeasterly direction last week when Bayou Development Company B-3 was abandoned at 8370 feet. The well showed only 540 feet of gas cut mud on a drill stem test from 8138 to 8152 feet. Bayou Development Company B-3 is in the J. Sellers Survey and is 2050 feet northeast of Bayou Development Company B-2, which was abandoned at 9107 feet. Humble Oil & Refining Company has made location for Bayou Development Company B-4, 1250 feet due west of Bayou Development Company B-3 in the J. Sellers Survey.

Stanolind Oil & Gas Company's State 4, 935 feet southeast of Pure Oil Company's Schelor 1, in the Dickinson Bayou, was running screen and tubing to complete at the end of the week. The hole was drilled to 8125 feet in salt water sand after finding the top of the sand at 8107 feet. An electrical logging device showed oil sands from 7981 to 7990 feet, a shale break from 7990 to 7992 feet and a sand from 7992 to 7994 feet.

The same operator's State 5, southeast of Humble Oil & Refining Company's Townes 3, was shut down at

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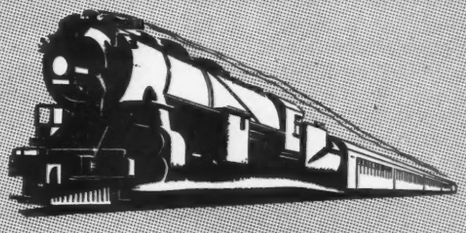

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Lv. Beaumont	6:24 P.M.	6:59 A.M.
Lv. Houston	8:40 P.M.	9:20 A.M.
Lv. San Antonio	2:20 A.M.	3:05 P.M.
Ar. El Paso (M.T.)	6:55 P.M.	8:45 A.M.
Ar. San Diego		8:45 A.M.
Ar. Los Angeles	5:00 P.M.	7:30 A.M.
Ar. San Francisco	8:10 A.M.	7:00 P.M.

Eastbound

	Sunset Limited	Argonaut
Lv. San Francisco	6:45 P.M.	8:00 A.M.
Lv. Los Angeles	9:10 A.M.	8:00 P.M.
Lv. San Diego		6:45 P.M.
Lv. El Paso (M.T.)	8:35 A.M.	8:15 P.M.
Ar. San Antonio	2:50 A.M.	3:20 P.M.
Ar. Houston	8:30 A.M.	9:10 P.M.
Ar. Beaumont	10:46 A.M.	11:40 P.M.
Ar. Lake Charles	12:15 P.M.	1:12 A.M.
Ar. New Orleans	6:00 P.M.	7:35 A.M.

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9155 feet waiting on orders at the end of the week after coring salt water sand from 9030 to 9043 feet.

Three wells in the Hastings field, Brazoria County, were nearing completion last week and each well will extend the field a short distance. Stanolind Oil & Gas Company's Turner 6, northeast flank test, A. C. H. & B. Survey, No. 1, was mixing mud preparing to bring the well in. The hole was drilled to 6069 feet in oil sand after topping the sand at 5997 feet and setting seven-inch casing at that depth. Also on the northeast flank of the field, Stanolind's Williams 6, 618 feet southeast of Williams 1, A. C. H. & B. Survey, No. 1, was waiting on cement at 6080 feet. Seven-inch casing was set at 6060 feet. On the southwest flank of the field the same operator's Law 1, H. & T. B. Survey, No. 36, was preparing to test seven-inch casing which was set at 5865 feet before bringing the well in. The hole was drilled to 6060 feet in oil sand. Stanolind Oil & Gas Company's J. M. Elliott 1 was moving in materials last week to prepare drilling on the first well listed in Galveston County. The Hastings field heretofore has been centered solely in Brazoria County but with the completion of J. Sneed 1, some time ago, the operators were forced to make a location over in Galveston County. Elliott 1 is 330 feet from the northeast line of a 20-acre tract and 330 feet from the Galveston-Brazoria County line in the Wm. Henry Survey. It is an east offset to J. Sneed 1.

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GARLOCK 7021

Three wells on the northwest flank of South Houston field, Harris County, were in process of completion at the close of the week. Stanolind Oil & Gas Company's First National Bank 3, was waiting on cement to set at 4833 feet. Top of the sand was found at 4540 feet and seven-inch casing was set at 4690 feet. The same operator's M. Butz 1, H. & T. B. Survey No. 6, was waiting on a potential test. The hole was carried down to 4654 feet in oil sand. Smith & McDannald's Meredith 1, was waiting on cement to set after drilling oil sands at 4035 feet.

Withers field, Wharton County, was extended 900 feet west last week when The Texas Company completed Pierce Estate C-7, J. Caldwell Survey, for nine barrels per hour from 5565 feet. The company also completed Pierce Estate C-6 for 18 barrels per hour from 5567 feet.

Near the Pickett Ridge field, Wharton County, Adrian Moore's Wilbeck 1, J. Telfener Survey, cored salt water sand from 4711 to 4717 feet, plugged the hole back, and perforated casing from 4701 to 4702 feet with 12 shots. At the end of the week the crew was swabbing. The Texas Company's Pierce Estate A-22, I. & G. N. Survey, Section 38, was waiting on cement to set at 4701 feet after drilling to 4708 feet.

On the East Bernard prospect, Wharton County, Sterling Oil & Refining Company abandoned Genzer 1, J. Scott Survey, at 7871 feet.

Amelia field, Jefferson County, was defined on the northeast last week when H. J. DeArmand's State National Bank 1, J. Bigner Survey, was abandoned at 7021 feet in salt water sand.

Humble Oil & Refining Company completed Quinn 2, C. Williams Survey, at 6733 feet. The well flowed at the rate of 15 barrels per hour through a quarter-inch choke with a tubing pressure of 160 pounds and a casing pressure of 690 pounds.

OIL SAND FOUND

Big Lake gas field looms as possible oil producer

Lake Charles.—Big Lake field in Cameron Parish, hitherto regarded strictly as a producer of gas and distillate, gave indications of becoming an oil field when Magnolia Petroleum Corporation's Alvin Hebert 1, half mile east of discovery gas well, cored oil sand from 8611 to 8618 feet in the Miocene formation. To further substantiate this indication of production, an electrical logging device showed nine ohms resistivity.

The crew set 7-inch casing at bottom June 17 and will perforate casing June 19 or 20 to make a production test. Magnolia Petroleum Company cored sand with an odor of oil from 8556 to 8562 feet and from 8562 to 8567 feet. A better oil sand was encountered from 8594 to 8606 feet. A core taken from 8606 to 8611 feet was sand and shale showing oil. A clean saturated oil sand was found from 8611 to the bottom of the hole.

Alvin Hebert 1, Section 13-12s-9w, was spudded in the middle of April, and encountered showings of oil from 5809 to the bottom of the hole. However, most of the oil sands carried salt water and were passed up in search of a bet-

ter producing horizon. If the 8600-foot sand fails to be productive the operators will more than likely perforate the different showings which were found further up the hole.

Big Lake field was discovered the latter part of December, 1935, when Magnolia Petroleum Company's Broussard 1 came in making an estimated 10,000,000 cubic feet of gas along with small amount of 52 gravity distillate from 7944 to 7966 feet in the Miocene formation.

Magnolia Petroleum Company has under lease over 10,000 acres in the Big Lake and Willow Lake areas, which are closely connected. Standard Oil & Gas Company has approximately 1300 acres south of the discovery gas well.

Jeanerette field, St. Mary Parish, was defined on the west last week when Herton Oil Company abandoned Banta 3, Section 40-13s-9e, at 9005 feet. Banta 3 is also the first dry hole drilled in the field by Herton Oil Company, sole operator at Jeanerette.

The most interesting test in Jeanerette field is Herton Oil Company's Carter 1, Section 38-13s-9e, 1208 feet east of Roane 2, which was a producer. Carter 1 was preparing to perforate casing above 8423 feet in a new sand. The crew drilled Carter 1 to 9602 feet, being the deepest test drilled in the field. The hole was plugged back, a string of five-inch casing was set onto the seven-inch casing which was cemented at 6748 feet. The combination string was set at 8500 feet. Casing was perforated at 8423 feet, and upon making a production test, Carter 1 showed salt water.

Before drilling to 9600 feet, Banta 3 discovered a new sand between the two main producing sands at Jeanerette, found at 6658 and 7470 feet, respectively. Banta 3 encountered an oil sand at 6741 feet. A production test made of the sand showed oil and salt water. Screen was pulled, and at 7046 to 7080 feet a sand and shale was cored which showed oil. Lignite was cored from 7158 to 7161 feet.

Herton Oil Company's Banta 4, Section 40-13s-9e, Jeanerette field, was completed last week at 6688 feet flowing at the rate of 30 barrels per hour through a quarter-inch choke. Tubing pressure was 1050 pounds; casing pressure was 1100 pounds. Oil sand was topped at 6653 feet and seven-inch casing was cemented at 6668 feet.

Gillis field, Calcasieu Parish, was extended west last week when Union Sulphur Company completed State 16, Section 11-9s-8w, for 575 barrels of 35.3 gravity pipe line oil through a 30/64-inch choke from 6754 feet. Top of the oil sand was penetrated at 6749 feet where seven-inch casing was set.

Union Sulphur Company's Powell 8, north flank test, Section 12-9s-8w, was completed flowing pipe line oil at the rate of 450 barrels per day through a 24/64-inch choke from 6730 feet. After coring sand showing oil from 6669 to 6679 feet and from 6709 to 6713 feet, the crew set 5¾-inch casing at 6708 feet.

Not over a 100 feet south of Union Sulphur Company's Buhler 1, which was abandoned some time ago at 7888 feet in salt water sand, L. & T. Oil Company was preparing to complete Buhler 1, Section 11-9s-8w, in the graben between the Gillis and English Bayou field. L. & T. Oil Company's Buhler 1 was drilled to 5264 feet in oil sand after topping gas sand at 5246 feet and oil sand at 5257 feet. A gas sand was also cored from 5210 to 5236 feet. At the end of the week the operators were running casing to make a production test.

The feature of this well is that two independent operators correlated the logs between Union Sulphur Company's Buhler 1 and Fohs Oil Company's Frost 1, which was the first commercial oil producer between the two fields, and found that Union Sulphur Company evidently missed this sand while drilling down to the 6700-foot sand. After abandoning Buhler 1, Union Sulphur Company surrendered the four-acre lease, and immediately the L. & T. Oil Company leased the Buhler tract with a drilling contract.

A gas sand was found in Humble Oil & Refining Company's Bel 2 last week at 2944 feet. When attempting to run an electrical logging device to the sand it was found the instrument could not be dropped below 2207 feet, and it was decided to drill deeper to where the sand was found in Bel 1, which blew out, caught fire and cratered some time ago. At the end of the week the operators were drilling below 3006 feet in shale. Bel 2 is 933 feet north and 933 feet east of Bel 1 on the Reeves prospect in Allen Parish.

Shell Petroleum Corporation's Colonial Sugar 1, on the Convent prospect, Section 5-12s-5e, St. James Parish, was re-drilling in sand at 2783 feet after plugging back from 7522 feet in salt. The operators discovered a new salt dome when Colonial Sugar 1 encountered salt at 7492 feet. After running geophones in the hole it was decided to plug back and make a series of tests. It was not known at the end of the week if the operators were in oil sand or not, but while drilling at this depth in the first hole a sand was cored from 2691 to 2747 feet. A drill stem test was made which showed mud with a salty taste and a small amount of gas. From 2708 to 2742 feet the sand on an ether test had a good cut.

Cavalier Oil Company has made a wildcat location in East Baton Rouge Parish. Susan A. Young 1 is 250 feet south of northeast corner and 200 feet west of the road on the northeast boundry of lot 10 in Section 62-4s-2w. Cavalier Oil Company is rigging up on Vignes 1 in East Baton Rouge Parish which is located in Section 40-8s-2e.

Wheeler Oil Company abandoned School Land 1, East Lake Charles prospect, Section 16-9s-7w, Calcasieu Parish, at 7160 feet.

After litigation was settled between Delta Drilling Company and Lincoln Oil Company over completion of Constantine 1, Leeville field, Lafourche parish, the former operators were preparing to complete the test, which may be one of the deepest producing wells in the field.

Delta Drilling Company's Constantine 1, Section 26-21s-22e, was drilled to 5043 feet in oil sand after topping the pay horizon at 5025 feet. Seven-inch casing was set at 5008 feet. On a drill stem test the well showed a 50-pound pressure and filled the drill stem with oil.

Lincoln Oil Company filed suit against Delta Drilling Company and alleged that the latter company drilled under its state leases. A settlement was reached whereby Delta Drilling Com-

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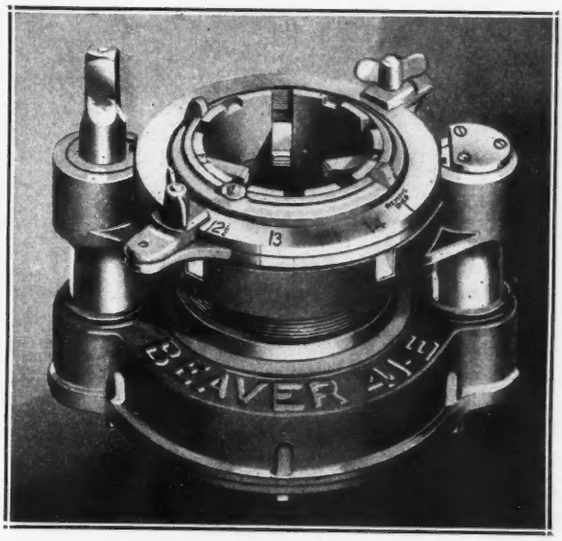

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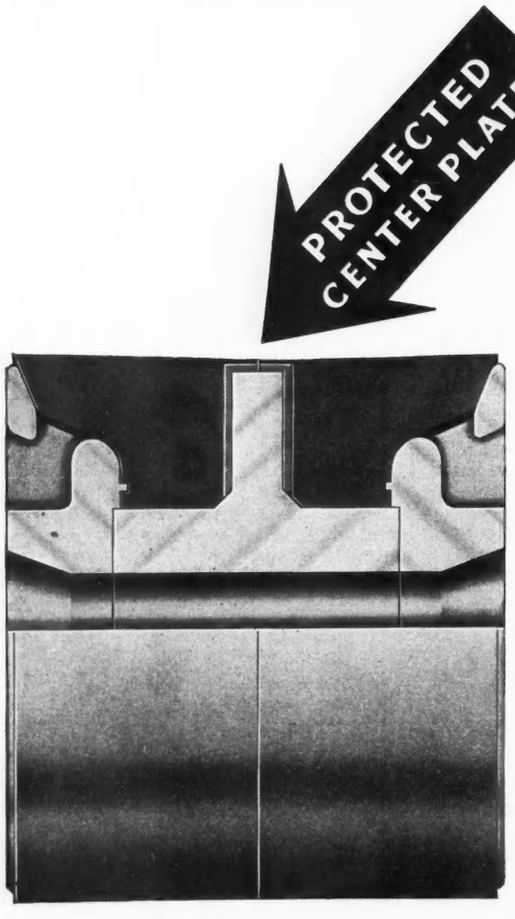

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pany is to be reimbursed with the first oil production for the drilling of the well. After the well has paid for itself then the two operators will receive a 50-50 share of the oil.

Delta Drilling Company is alleged to have drilled a hole which veered to the west and stopped under Lincoln Oil Company's State leases. Delta Drilling Company has a long, narrow lease in Leeville field, and it is understood that the operators were trying to sidetrack in a northerly direction instead of to the west.

The Texas Company has made location for L. P. Bryant 1 on the northwest side of New Iberia field, near Harry Fotides' Gulf Land Fee 1. L. P. Bryant 1 is 650 feet southwest along line from northeast corner of Gulf Land Fee tract and 160 feet east at right angles in Section 25-12s-7e. Harry Fotides has made location for Gulf Land Fee 2, 400 feet southwest of Gulf Fee Land 1 which was abandoned the previous week at 3608 feet after flowing salt water.

Gulf Oil Corporation's Anding 2-B gave indications of extending Roanoke field, Jefferson Davis Parish, to the northwest last week when a drill stem test showed oil. Oil sand, topped at 8723 feet, was cored to 8730 feet, the bottom of the hole. Seven-inch casing was set and a production test will be made of the sand. Previously the operators ran an electrical logging device to 8726 feet and it showed three feet of sand which carried 12 ohms resistivity. A drill stem test was made from 8692 to 8724 feet through two quarter-inch chokes with 1300 feet of fresh water in the hole. After the testing tool was open for 10 minutes the operators recovered 1000 feet of oil, 90 feet of oil cut mud, 1350 feet of fresh water and no salt water.

Continental Oil Company's T. Ortego 2-A was completed last week in Tepetate field, Section 28-7s-2w, offset of A. Ortego 1-A, Acadia Parish. Initial production was 385 barrels per day through a 3/16-inch choke with a tubing pressure of 1250 pounds; casing pressure was 2050 pounds. The crew drilled the hole to 8312 feet and set 5¾-inch casing to the bottom. Casing was perforated and the well flowed 110 barrels in 11 hours and then went dead. The casing was again perforated with four holes from 8302 to 8304 feet and the well came in making pipe line oil at the rate of 385 barrels per day.

SOUTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BAYOU BOUILLON—		
Southern Oil Co., State 1	135	2904
CHOCTAW—		
Standard Oil Co., Wilbert 8	*	5828
GILLIS—		
Union Sulphur, Powell 8	450	6730
State 16	575	6754
LEEVILLE—		
Gulf, Allen Land 10	430	3725
Lincoln Oil Co., Constantine 2	*	5133
LOCKPORT—		
Magnolia, Freeburg & Wolf 4 (wo)	100	3737
SULPHUR—		
Union Sulphur, Fee 825	400	3152
TEPETATE—		
Continental, Ortego 2-A	385	8312
CALCASIEU PARISH—		
Wheeler Oil Co., School Land 1, East Lake Charles prospect, sec 16-9s-7w	*	7160

*Failures; †Junked; ¶Million cu. ft. gas.

Rodessa Quiet

ONLY FOUR SMALL WELLS COMPLETED DURING WEEK

WEEKLY STAFF REPORT

Shreveport.—Rodessa had one of the quietest weeks in its existence as an oil field dating from discovery of oil there last July. During the seven-day period ending June 17, only four new wells were completed to bring the total of oil wells in that area to 214. Only 55 tests were actively drilling in the field on that date. All of the week's wells were small and were tests on the outskirts of the producing area for the most part.

Phillips Petroleum Company, Adams 3, NW NW 17-23n-15w, a northeast edge well in the main northeast offshoot of the field, was completed at 6039 feet, flowing 99 barrels of oil in the first 15 hours on 15/64-inch tubing choke with a casing pressure of 450 pounds and a tubing pressure of 775 pounds. The other three completions were owned by United Gas Public Service Company and are: Tyson 10, SE SE 11-23n-16w, north edge well, completed at 6030 feet flowing 13 barrels of oil per hour through quarter-inch tubing choke with a casing pressure of 800 pounds and a tubing pressure of 200 pounds; Pitts 7, SW SW 13-23n-16w, completed at 6095 feet, flowing 16 barrels per hour through quarter-inch tubing choke with a casing pressure of 450 pounds and a tubing pressure of 350 pounds; Spearman 3, NW SW 18-23n-15w, in the northeast offshoot of the field, completed at 6037 feet flowing 16 barrels per hour on quarter-inch tubing choke with a casing pressure of 325 pounds and a tubing pressure of 525 pounds.

Retarding Influences

Three main factors are contributing toward the present period of relatively low activity in Rodessa, where there are at present only fifty-five test actively drilling: (1.) The reduction of the per well allowable to 275 barrels per day and the average cost of $4.50 per foot for drilling have made a rather longer period for a well paying itself out; 30 rigs are stored in the field at present. (2.) Operators are watching the Louisiana legislature to see what laws affecting the oil and gas industry will be enacted at the present session which will adjourn about mid-July after the 60 day biennial session. (3.) The producing limits on the north and northwest of the Louisiana part of the field have been practically defined, and edge wells in those directions now, while none has been a failure, have been of very low capacity compared to wells in the main part of the field. Another factor is that large companies are buying out the independents and their plans of development are more conservative.

Rodessa last week had only four new wells, and none was added from Monday to Thursday, a record not chalked up for several months previous. There were 13 new locations, eight of them in Cass County, Texas.

The new locations are: Louisiana—R. W. Norton (Magnolia Petroleum Company) Atkins 4, SW SE 18-23n-15w; Atkins 5, NW NE 18-23n-15w; and Foscue 5, SE NE NE 29-23n-16w; United Gas Public Service Company: Lindsay-Maroun 2, and J. L. Teamer 1, the former in NW NW 24-23n-16w, and the latter NE NW 24-23n-16w. The eight in Cass County, Texas, were: Grady H. Vaughn, White-Walker Lumber Company 1, on a three-acre tract in J. H. Rives Survey, near American-Liberty Oil Company's Rambo 1 in the same survey, a four mile southwest extension. The others were by Showers and Moncrief for Stallcup 2, 3, 4, 5, 6, 7, and 8, on a 162-acre tract in the Robert Trammell Survey.

American Liberty Oil Company's Rambo 1 was treated with acid, its oil yield having dropped to about 70 barrels daily through choke, according to reports.

Sabine Uplift Leasing

Although leasing and geophysical activity are most active in southeast Arkansas and northeast Louisiana in the "play" that has developed south, east and southeast of the Permian lime gas discovery well recently completed in Section 27-15-15, Ouachita County, Arkansas, considerable activity continues in the North Louisiana Basin and around the flanks of the Sabine Uplift.

In Bienville Parish in the "basin", Sun Oil Company continues to buy scattered leases in Townships 15 north and 16 north, Range 9 west. In Bossier Parish, United Gas Public Service Company recently added 160 acres to its holdings in the Sligo gas field in Sections 14 to 23-17n-12w. Magnolia Petroleum Company has a geophysical party still at work in Township 23 north, Range 13 west. Julius Fohs is reported to have bought from Lide, Greer and associates 480 acres in their block in Bienville Parish.

Standard Oil Company of Louisiana recently took a 7500-acre block in Claiborne Parish northwest of the old Homer shallow field, centering in Section 10-21n-8w, after geophysical work was done in the area. Standard's seismograph unit is working southwest of a 6200-acre block it recently leased, centering in Section 15-9n-7w.

In Jackson Parish Phillips Petroleum Company has a torsion balance unit at work. In Lincoln Parish, Arkansas-Louisiana Gas Company is paying rentals on a block on which it recently drilled a 4500-foot test in Section 32-19n-2w.

In Webster Parish, Tide Water Oil Company is completing work on a block it recently assembled in Township 18 north, Range 10 west. W. C. Feazel and associates of Monroe, Louisiana, have taken over a block around J. L. Edwards' Hooper 1, Section 18-17n-9w, which is below 3000 feet. Royalty buying has spurted in the Sibley district where J. P. Evans recently completed a large wet gasser at 5589 feet in Crichton 1, Section 35-18n-9w.

Shell Petroleum Corporation has a seismograph unit working in Township 10 north, Range 1 east, northwest of Tullos.

DEEP TEST SHOWS

Cotton Valley well blows oil from 8369-foot sand

Shreveport.—Ohio Oil Company's R. L. Holloway 6, NE SW 23-21n-10w, a proposed 10,000-foot test in Cotton Valley field, Webster Parish, which a fortnight ago showed 25 million cubic feet of wet gas in a drill stem test at 8125-47 feet, last week showed oil at 8369 feet while preparations were being made to cut a core. The well blew out oil, but was quickly brought under control and coring resumed.

Some believe this oil showing may have been in top of the Permian lime. If this is correct the Travis Peak was 2400 feet thick. The gas showing at 8125-47 feet was believed in the lower Trinity. Operators may soon set another string of casing as there is considerable open hole. Elevation is 210 feet.

Another wildcat test in North Louisiana showed wet gas below the anhydrite last week in what probably corresponds to the Hill horizon at Rodessa. This is E. T. Oakes' Patton Estate 2, NE NE 1-20n-5w, Claiborne Parish, five miles northeast of the Sugar Creek gas field that produces wet gas in the Glen Rose at 4300-4500 feet. Oakes' test, which has elevation of 357 feet and is 72 feet from Patton 1 that had to be junked after coring one foot of oolitic lime at 4238 feet, cored oolitic lime at 4235-43 feet with a strong showing of gas. The operator, however, had to shut down immediately due to lack of water.

J. P. Evans' Crichton 1, Section 35-18n-9w, Webster Parish, recently completed at 5589 feet in Gloyd sand to open a new gas field, is choked in to five million cubic feet of gas daily through 3/64-inch choke. It is making about five barrels of distillate per hour with the gas through this choke.

Pyramid Oil and Gas Company plans to deepen Wheeler A-1, Section 16-18n-16w, Caddo Parish, which recently tested salt water in the Glen Rose at 4850 feet after being plugged back from 5210 feet.

Lide and Greer's S. Gardner 1, Section 10-17n-4w, Lincoln Parish, the second test to be drilled in the Simsboro

gas field opened several months ago with a wet gasser at 5300 feet in the Glen Rose lime below anhydrite, last week was coring gray shale with streaks of red at 6463 feet. This test had several oil odors in streaks of porous lime from 6347 to 6407 feet, but none sufficient to warrant a test.

Two wildcat locations were made last week in Caddo Parish. They are Prairie River Syndicate's Hutchinson 1, SW NW 15-15n-12w, a proposed 6,000 foot test, and R. E. Dalton's Leon Noel 1, SW SE SE 4-21n-14w.

In 1919 the average gasoline tax was nine-thousandths of one cent per gallon; today it exceeds five cents.

The United States Army and Navy consume about 8,000,000 barrels of fuel oil annually.

OFF-TREND LEASING
Border counties are attracting oil companies

Shreveport.—Outside the Rodessa play additional activity is getting under way in several East Texas border counties in Cass and Marion Counties. In Panola County, Pure Oil Company is taking a block of acreage in the Wyatt Anderson, Charles O. Haley, J. K. Williams, S. B. Hendricks, J. Green, J. W. Abernathy and adjacent surveys after seismograph exploration. Near Haslam, but in Panola County, Amerada Petroleum Corporation is buying leases in and around the Mannon Smith Survey.

In Shelby County, east of Shelbyville, Humble Oil & Refining Company has a geophysical crew working. Rio Oil Company is reported negotiating with lumber companies for acreage, including some held by Tarbud Oil Company on which a 5000-foot test was recently drilled on Pickering Lumber Company fee, W. D. Woodfin Survey, which leases have now lapsed, it is reported.

NEARING PERMIAN
Outcome of two Snow Hill tests expected soon

El Dorado.—With two other tests in the new Snow Hill Permian gas producing district in Ouachita County having reached the Permian lime horizon, the outcome of which should be known within the next week, Phillips Petroleum Company's J. D. Reynolds 1, SE NW 27-15-15, completed as a gas-distillate producer several weeks ago, is furnishing gas for eighteen drilling rigs. The well is choked in to five million cubic feet of gas daily with which it is making 84 barrels of 64 gravity distillate daily. The well is producing with a tubing pressure of 250 pounds and a casing pressure of 1765 pounds.

Arkansas-Louisiana Gas Company is laying six miles of six-inch line to the well and will purchase seven million cubic feet of gas daily.

The tests reaching the Permian lime are Standard Oil Company of Louisiana's Reynolds B-3, SE NE SW 27-15-15, in which seven-inch casing has been cemented, and John Pugh's Hildebrant 1, SE SE 28-15-15. Both tests logged saturated lime at top of the Permian.

The second deepest test ever drilled in Arkansas, Ohio Oil Company's Bodcaw Lumber Company 3, NW NW 20-16-23, shut down at 7707 feet after a drill stem test showed gas and salt water. The test was made after the well cored porous oolitic lime from 7626 to 7698 feet in what is tentatively identified as top of the Permian. The test may be deepened.

The porous section was from 7654 to 7698 feet, the porosity being 90 millivolts and the resistivity 18 ohms, as revealed by an electrical tester. Bottom hole temperature was 170 degrees. The well in the test showed 2200 feet of water and a little gas in 12 minutes, the tool being set at 7626 feet.

Arkansas' deepest test is Gulf Refining Company's Werner 49, Section 5-16-16, Union County, drilled to 7989 feet last year.

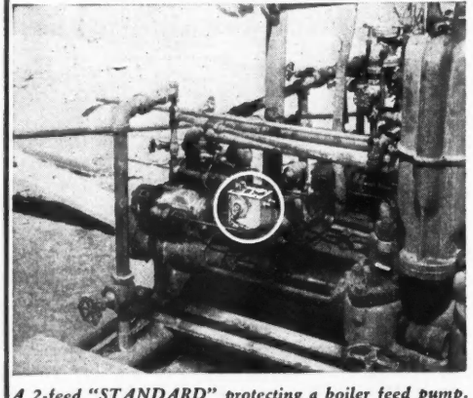
May and Easton's Conway Estate 1, NE SW 20-12s-27w, a wildcat test in Hempstead County, near McNabb, was reaming down last week preparatory to running formation tester after coring a sand showing oil from 2612 to 2623 feet in what corresponds to the Gloyd sand at Rodessa. Elevation is 290 feet.

This test is approximately 50 miles north of Rodessa field and the Trinity rises rapidly toward the surface in that direction from Rodessa, where the Gloyd formation in the Glen Rose is found at 5700-5800 feet.

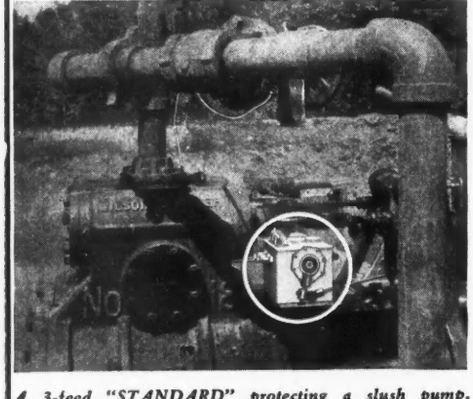
Massive anhydrite in the Hempstead County test was logged from 1913 to 1969 feet. The test is on a large block of acreage in which spreads have been taken by a number of major companies and some individual operators.

Helping GOOD EQUIPMENT

A 3-feed "STANDARD" protecting a drilling engine.



A 2-feed "STANDARD" protecting a boiler feed pump.



A 3-feed "STANDARD" protecting a slush pump.

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"STANDARDS" continue to take the lubrication worries off the minds of more and more operators. One user after another passes a good word along. New users quickly see the trouble and money saving advantages, the simplicity of operation, and the positive dependability of "STANDARDS." Operators who give them a trial not only continue to buy them . . . . they continue to be our best salesmen.

Your Supply Dealer will gladly tell you about "STANDARDS." He has a model to meet your lubrication requirements.

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"STANDARD" LUBRICATORS

Heavy Leasing

OUACHITA COUNTY PERMIAN LIME STRIKE IS CAUSE

WEEKLY STAFF REPORT

El Dorado.—The greatest geophysical campaign south Arkansas has ever witnessed and one of the heaviest leasing campaigns in its history is now under way as the sequel to discovery of wet gas at top of the Permian lime at 4926 feet in Ouachita County.

O. G. Murphy has secured leases on all of the bars, beds, and lakes in the Saline and Ouachita Rivers in Township 17 south, Ranges 9 and 10, with the proviso that the leases are to be voided unless production is obtained before next March. In Ashley County, Sun Oil Company, Lion Oil Refining Company, Superior Oil Company, H. L. Hunt, P. N. Wiggins, Jr., and Harry Elam are among those securing leases. In Bradley County, Magnolia Petroleum Company is leasing in Township 16, Range 10.

Phillips Petroleum Company has a seismograph unit working in Township 16, Range 11. In Calhoun County, Arkansas-Louisiana Gas Company and Tide Water Oil Company have shooting crews at work in Township 15, Range 14.

In Columbia County, a large independent company is negotiating with J. F. Magale for purchase of his 10,000-acre block centering around Section 18-19-18. East of Magnolia in the same county, Phillips Petroleum Company is adding to its 10,000-acre block in Township 17 south, Range 20. In the same county, Magnolia Petroleum Company has a shooting crew working in Township 15, Range 20, and Standard Oil Company of Louisiana has a seismograph unit working in Township 19, Range 20. Root Petroleum Company has a shooting unit working near Magnolia in Columbia County.

Frank Munn of Shreveport has assembled a 3500-acre block in La Fayette County in Township 15 south, Ranges 23 and 24. Boring and associates are also taking leases in the same general area. In La Fayette and Columbia Counties, Superior Oil Company is leasing in Townships 18 and 19, Ranges 22 and 23. George E. Failing of Enid, Oklahoma, is shooting south of Bradley in the same county.

In Miller County, Standard Oil Company of Louisiana has a seismograph unit working around Section 36-16-26. Joe Longino of Magnolia, Arkansas, is getting a block in Township 14, Range 21, Nevada County, and in the same

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Rodessa)—		
Phillips Pet. Co., Adams 3, 17-23n-15w	500	6039
United Gas Pub. Serv. Co., Pitts 7, 13-23n-16w	1500	6095
Tyson 10, 11-23n-16w	1500	6030
Spearman 3, 18-23n-15w	1500	6037
DE SOTO PARISH—		
Tarbud Oil Co., Caddo Realty Co. 1, 2-13n-16w	*	3174
MOREHOUSE PARISH (Monroe)—		
J. E. Farrell et al, State of Louisiana 21, 33-22n-4e	¶4	2135
UNION PARISH (Monroe)—		
J. E. Farrell et al, State of Louisiana 20, 4-21n-4e	¶6	2135
Carbons Consolidated, Southern Carbon Co. 1, 11-21n-3e	¶1	2192
Southern Carbon Co., Grayling 9, 8-21n-4e	¶11	2145

*Failures; †Junked; ¶Million cu. ft. gas.

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Exclusive Gulf Coast Distributors for Wilson-Snyder Pumps; American Cable Tru-lay *Pre*formed Wire Rope; Kewanee Boilers; Sievers Reamer; Driftmeter, Jr.; Gray Swivel; Nixon Ferrill Gas Lift. Portable Rig Company's Mechanical Rig.

BRANCHES
Barbers Hill, Kilgore, Greta, Gladewater, Bay City, Corpus Christi and Victoria, Texas; Lake Charles and Rodessa, La.

county in Townships 14 and 15, Range 20, Benedum and Trees are having shooting work done. Stanolind Oil & Gas Company has a seismograph unit working between the Nevada County oil field and the Stephens field, both old shallow fields, the former with about 700 barrels daily stripper production and the latter with about 600 barrels daily of the same type of yield.

In Ouachita County, where there is now little available acreage where there are pronounced evidences of structure, Rush Smith is taking leases in Townships 14 and 15, Range 19, and Joe Walters is leasing in Township 15, Range 19.

Union County is coming in for a big share of the play, leasing activity being particularly noticeable last week in Township 18, Range 12. In Township 18, Range 16, Magnolia Petroleum Company has a seismograph unit. Two shooting crews are working in Township 15, Range 15. Lion Oil Refining Company has a seismic unit working in the same county.

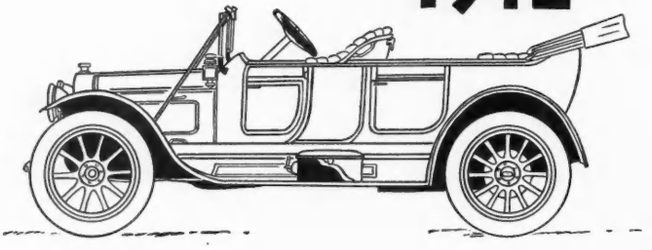
North Louisiana Involved

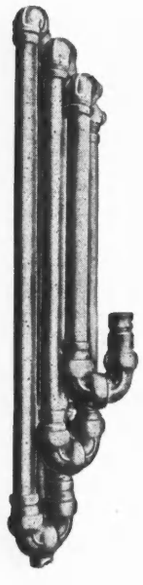
The campaign reaching down into Northeast Louisiana includes leasing in Morehouse, Ouachita, Union and Franklin Parishes. In Franklin Parish, C. H. Murphy and associates have secured geophysical options on 9000 acres in Township 13 north. Range 6 east, in which general area Sun Oil Company recently leased 2500 acres. In Morehouse Parish, Phillips Petroleum Company has a shooting unit working around Section 11-22n-7e, just west of a block held by United Public Service Company. Phillips is reported to have taken a geophysical option on the block of H. E. Rondeau and associates in Township 20 north, Range 7 east. If acreage is taken a 6000-foot test is planned.

In Ouachita Parish, J. C. Vaughn is leasing in Townships 15, 16, 17 and 18, Ranges 2, 3 and 4 east. In Union Parish, Eastern Texas Production Company, H. C. Miller, and Harry Elam are leasing in Townships 21, 22 and 23, Ranges 1 and 2 west and 1, 2 and 3 east.

Phillips Petroleum Company officials in Shreveport have denied that any geophysical option has been closed with Joe Modisett and associates for geophysical exploration rights on 256,000 acres of Frost Lumber Company land in Ashley and Union Counties, Arkansas, and Union and Morehouse Parishes, Louisiana.

HIGH POWER -1912





YOU don't judge today's auto by the 1912 models. Like the early autos the first all steel rotary hoses had their drawbacks too. But when CHIKSAN entered the Steel Hose field they soon overcame such disadvantages as tremendous weight, troublesome joints, restricted fluid passage and bulkiness.

Chiksan Rotary Hose offers you:

LIGHTWEIGHT—The 4" Chiksan Super Rotary Hose weighs only 1,050 pounds. (Not long ago 3" Steel Hose weighed 1,600 pounds).

AMAZING FLEXIBILITY—Double rows of ball bearings insure easy turning. All moving parts are lubricated by Alemite.

FULL 4-INCH FLUID PASSAGE—Permits the use of 4" fluid passage swivels, full hole tool joints and large circulation area in bits and reamers.

COMPACTNESS—When folded for shipping a 4" 50 ft. Chiksan Hose requires only 8 foot length and a 2 ft. width and depth.

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CHIKSAN OIL TOOL CO. LIMITED

FULLERTON, CALIFORNIA — GULF ENGINEERS INC., HOUSTON, TEXAS

24 PERMITS

Shreveport.—Twenty-four drilling permits were authorized last week by the minerals division, Louisiana conservation commission. Of these 13 were in North Louisiana divided among the following parishes: Caddo, nine, of which seven were in Rodessa; Grant, two; Union, one; and Webster, one. The eleven in south Louisiana were divided among the following parishes: Acadia, two; Ascension, one; Cameron, two; Iberia, five; and St. Mary, one.

TO TEST AGAIN

Mobile.—J. C. Prine of Citronelle, Alabama, has gone bock in King 1, Section 4-1n-4w, Mobile County, Alabama, drilled about two years ago to total depth of 3186 feet and abandoned after an electrical tester was run, and recemented hole for a test between 2500 and 2600 feet.

Grand Bayou Oil & Gas Company (Theodore H. Bartu and associates) expects to start a 6000-foot test soon on a 60,000-acre block in Mobile County, located in Townships 5, 6 and 7 south, Ranges 1, 2, 3 and 4 west. One major company has held considerable acreage in this county near this block for several years.

TWO NEW WILDCATS

Jackson.—Two new locations, both wildcats, were announced last week in Mississippi. In Claiborne County, Claiborne County Development Company made location for Ruth Hayden 1, irregular Section 56-11n-2e. Contract depth of the well is 2500 feet. In Hinds County, on a 30,000-acre block, Chi-

ARKANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MILLER COUNTY (Garland City)—		
M. L. Luckett et al, Harold Beck 1, 34-15-26	*	2946
OUACHITA COUNTY (Smackover)—		
J. D. Reynolds et al, McKenzie 1, 36-15-16	25	2008

*Failures; †Junked; ¶Million cu. ft. gas.

chester and associates made location for Gervin 1, NE NE SE 11-5n-4w, for a 3000-foot test. Joseph A. Baker of Jackson is the drilling contractor.

Goodwill Oil & Gas Company (Buford Berry and associates) is planning a test on a block centering in Section 33-2n-4e, on which two tests were drilled a few years ago.

INJUNCTION GRANTED

Jackson—Love Petroleum Company et al recently were granted an injunction in a three-judge federal court in New Orleans against the Mississippi State Oil and Gas Board, restraining the latter from enforcing its recently issued pro-ration order governing gas withdrawals from the Jackson, Mississippi, gas field. Petitioners claimed that the pro-ration regulations prevented them from carrying through contracts for supplying the city of Jackson with gas pursuant to a contract made before the pro-ration law was enacted by the Mississippi legislature.

While most people think of oil as source of power and lubrication, oil products enter the manufacture of drugs, paints, perfumes, ink, tires, chemicals, paper, cloth, and countless other products.

The petroleum industry of the United States buys more than $7,000,000 worth of goods annually from hundreds of other industries.

Quealy Dome Well

TEST OF CALIFORNIA COMPANY YIELDS 432 BARRELS DAILY

ROCKY MOUNTAIN FIELDS

WEEKLY STAFF REPORT

Laramie, Wyo.—Completing as the fourth producer for the Quealy Dome field, Albany County, the California Company finished Wilson 1, NW SW SW 18-17n-76w, at 3398 feet for 18 barrels an hour or 432 barrels daily.

Wilson 1 is an east offset to the Quealy Dome discovery well. Holst 1 the discovery well, made 60 barrels a day from the Muddy at 3146-73 feet in 1934, and on deepening it was recompleted for 600 barrels daily in the Dakota at 3231-36 feet in April, 1935.

Holst 2 was drilled to 4207 feet, penetrating vertical beds in the Morrison and was plugged back to complete for 250 barrels daily at 3267 feet in the Dakota. Holst 3 was abandoned last week after drilling to 3420 feet.

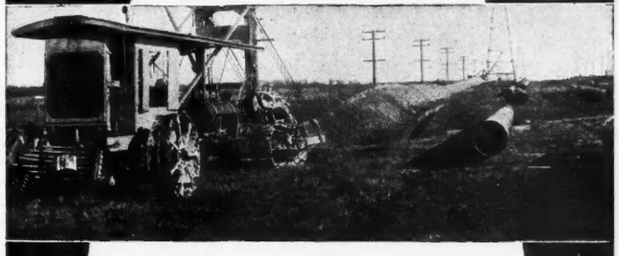
California Company and Ohio Oil Company's two joint operations in the Big Medicine Bow field, Carbon County, south central Wyoming, report as follows: Union Pacific 2, CNE NE 35-21n-79w, is drilling at 5171 feet and Union Pacific 3, CNE SE 23-21n-79w, is drilling at 4664 feet.

In the Rock River field, Carbon County, the Ohio Oil Company's Diamond Cattle Company 7, N 35-20n-78w, is drilling at 1328 feet. This is the Ohio's first well in this field to be drilled directly from the surface to the Sundance.

Burning Well Extinguished

The wild burning gasser of the Stock Oil Company on Garland anticline, Big Horn County, which has been flowing an estimated 60 million cubic feet of gas daily, was brought under control this week at 11 o'clock Sunday morn-

Simplifies THE BIG JOBS



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ing. The flame was shot out with solidified explosive. Operations were supervised by John McFayden, vice president and superintendent of western operations for the Ohio Oil Company who has been interested in bringing Allen 1, SE NW SE 35-56n-97w, under control.

In Byron field, Big Horn County, northern Wyoming, Ohio Oil Company is still rigging up pumping equipment for Byron-Union 4, CSW NE 25-56n-97w, to complete in the Embar lime at 5587-5700 feet. The well swabbed 192 barrels in the first 24 hours after running 2000 gallons of acid. In the same field the Ohio's other operations report routine: Robert Till 1, CSE SW 24-56n-97w, is drilling at 4841 feet; Orson Vail 1, CNW NE 23-56n-97w, is drilling at 2274 feet, and State Land 1, northeast corner Lot 38, (Northwest Corner) 36-56n-97w, has rig up.

Three miles west of the discovery well on Muskrat Dome, and on a separate fault block, Fremont County, the Sinlciair-Wyoming Oil Company's Muskrat 2, C NE SW SW 1-33n-92w, bottomed at 3970 feet, is reaming at 2160 feet to lower 9⅝-inch casing.

In the Waugh Dome field, Hot Springs County, northern Wyoming, the California Exploration Company's Government 2, NW SW NW 7-44n-96w, is cleaning out for test at 4230 feet.

Eastern Wyoming

Argo Oil Company completed a well in the Lance Creek field, Niobrara County, eastern Wyoming. Elliott 7, CNE SW 5-36n-65w, is pumping at rate of 10 barrels per hour. Operators may acidize well at 3941-97 feet in the tight cemented lime to boost production. Total depth is at 4009 feet.

Ohio Oil Company's 8 Lamb Account 2, CSW NE 5-35n-65w, Lance Creek, is drilling at 3671 feet, while Carrie Putnam 5, CNW SW 33-36n-65w, is rigging up rotary.

In West Mule Creek field, Niobrara County, the Chester Oil Company is drilling at 183 feet in Fee 1, NEc 14-39n-61w.

South Central Wyoming

Bridger Basin Oil Company's Government 1, NW NW SW, 10-14n-118w, which is a first report in the Aspen field, Uinta County, is drilling at 1070 feet.

Progress is being made in the Mountain Fuel Supply Company's extension test in the South Baxter Basin gas field, Sweetwater County. The well, W. T. Nightengale 1, SW NE 32-16n-104w, is drilling at 829 feet.

Two wells were completed in the shallow light oil field of Osage, in northeastern Wyoming. H. O. Wiltse 8, NW NW NE 7-46n-63w, pumped 19 barrels oil initial in the shale at 308 feet. Henry Egert's 3, CSL NW SE 8-45n-63w, pumped one barrel initial from 370 feet.

Montana

Swabbing 250 barrels in 22 hours, Wilkinson's Tribal 1, 126, the farthest well to the southwest in the Cut Bank field, Glacier County, northern Montana, held the spotlight of interest this week. Two other wells finished and three new locations were staked.

Wilkinson's Tribal 1, 126, NE NW 7-32n-5w, is rated to make a 90 barrel well in settled production. Hole bottoms at 2868 feet.

Santa Rita Oil & Gas Company's McCabe Permit 2, NW SW NW 31-33n-5w, is a 40 barrel well at 2835 feet. Oil rose 40 feet in the casing and operators plan to shoot this test.

Consolidated Gas Company completed Nadeau Alloted 114, 1, Lot 8, 31-33n-5w. The well swabbed 80 barrels from 2948 feet in 24 hours before two shots of nitro glycerin, and is rated to make a 35 barrel well.

Cobb and Pardee released location for 1 Allotted 115, CSE SE 31-33n-5w; Consolidated Gas Company's 1 Allotted 114, CSE SW 31-33n-5w, is a new well as is Whetstone's Tribal 118, 1, CSW SW 1-32n-6w.

In the Hardin gas field, Big Horn County, southern Montana, the Daniels Petroleum Company's May 1, CSE SE 13-1s-33e, is flowing 20,000 barrels of water daily at 3333-85 feet. The Chugwater formation was encountered at 3490 feet.

Baker Glendive

Dakota-Montana Utilities have started another well in the Baker Glendive field, Fallon County, eastern Montana. The well, 75, CSW 25-9n-58e, is drilling below 1400 feet in the Judith River series and is feeling ahead for the Eagle sandstone.

WYOMING Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
WESTON COUNTY (Osage field)—		
H. D. Wiltse 8, nw nw ne 17-46n-63w	19	308
Henry Egert 3, csl nw se 8-46n-63w.	1	370

*Failures; †Junked; ¶Million cu. ft. gas.

MONTANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
GLACIER COUNTY (Cut Bank field)—		
Texas Co., Morrison 6, 660 ft. south of nwc on west line 22-35n-6w	100	2902
R. C. Tarrant, Miller 5, ne ne 24-34n-6w	110	2811
R. C. Jeffries, Lukens 4, ne ne 12-33n-6w	160	2985
Dakota-Montana Oil Co., Winkler 4, nw nw 35-35n-6w	75	2885
R. C. Lee, Tribal 1, 129, nw sw 24-33n-6w	*	3240

*Failures; †Junked; ¶Million cu. ft. gas.

MONTEBELLO WELL

Los Angeles.—Richfield Oil Company's Nutt 1 in the East Montebello field near Los Angeles has been completed for 3500 barrels of 37 gravity oil, cutting 6 percent, with bottom of hole at 5901 feet. The well is making 1,440,000 cubic feet of gas through 1½ inch bean, with a casing pressure of 1260 pounds and a tubing pressure of 155 pounds. Nine inch water string was cemented at 5400 feet and 2½ inch tubing was hung at 5312 feet. Well is producing through 506 feet of perforated, and both upper and lower Nutt zones are being produced from.

How Much Is It Worth?

This ball and seat may be catalogued at $3.07 . . . but to the operator in whose well it is lost it may represent a cost of several thousands of dollars.

The history of this ball and seat is typical of dozens of other objects that, when lost, become exceedingly costly. Due to certain well conditions the top of a double cage pump had unscrewed, leaving this ball and seat plugging the top of the barrel so that a spear could not be used. Tubing could not be pulled because it had been set on a packer deep in the drilling mud when the well was brought in. The fish and the standing valve at the bottom of the pump plugged the tubing so that pressure could not be forced through the tubing to equalize the pressure on each side of the packer. A 2⅛" Cavins Bailer and Junk Basket was called into use and run inside the tubing (2⅞" O.D.). As in many cases, the fish was recovered on the first run—less than an hour being consumed for the entire job.

When there is a fishing job to be done—call for the CAVINS—it may save you thousands of dollars.

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Adams Campaign

FIVE TESTS SCHEDULED FOR SANTA BARBARA COUNTY AREA

WEEKLY STAFF REPORT

Los Angeles.—An active drilling campaign is under way in the Adams area of Santa Barbara County where Union Oil Company completed Adams 1 April 1, for a potential output of 2376 barrels a day of 16.4 gravity oil cutting 1.0 percent and making 140,400,000 cubic feet of gas. Union Oil Company's Battles 1 is drilling at 1296 feet, offsetting the Adams well on the south, and rig is up for Union Oil Company's Bettiga 1, offsetting the same well on the east.

About 2000 feet west of Adams 1, Union Oil Company's Moretti 1 has been standing shut in since November, 1934, when it established a potential of 41 barrels a day of 17.0 gravity oil cutting 0.1 percent. Although this well is credited by some with being the discovery well of the area, constant sand and casing troubles have prevented its becoming a dependable commercial producer, and it can really lay claim to being only a pioneer which pointed to the discovery. Rig is now erected for Union Oil Company's Mahoney 1 well which will offset the Moretti well on the south.

Each of the above five wells and locations is in Section 24-10n-34w, which is situated 5½ miles north of the Santa Maria oil field, and five miles north and east of the city of Santa Maria. Half a mile north of Moretti 1, R. R. Bush Oil Company's Hancock-Bush-Enos 1 was spudded June 6 and is drilling in sand and shale at 800 feet.

Structural Deductions

Since only two wells have been drilled to the oil zone in this area, and since no evidence of subsurface structure is reflected in surface outcrops or topography, it is not possible at present to make a definite analysis of structural conditions which will be encountered. A few facts are known, however, from the findings of these two first wells, and from them a great deal of general information may be deducted.

Production here is obtained from sands which underly the Monterrey shale formation of Middle Miocene age, and unconformably overly the metamorphosed Franciscan cherts of probable Jurassic age. From their respective positions in the geologic column it can be seen that a great time interval elapsed between metamorphosis of the cherts and deposition of the overlying sands, which may be considered indicative of a profund erosional unconformity. The sands, in the absence of proof to the contrary, may be considered equivalent to a basal conglomerate of the Monterrey series, overlain by shales which might have served as the source rock from which the oil was later derived and which now constitute the cap rock of the structure.

Underlying cherts, which here form the basement, outcrop above five miles to the northeast over an area about three miles long by 1½ miles wide, elongated in a northwesterly-southeasterly direction. Since these basement rocks are known to have undergone a long period of erosion prior to deposition of overlying sediments, it is logical to assume that this erosion resulted in surface topographic forms similar to those of any present day hilly portion of the coastal region.

It is possible a structural condition closely analogous to that of the lower zone of the Playa del Rey oil field in Los Angeles County will be disclosed by further drilling. There the underlying Franciscan metamorphics were eroded into a ridge with many lateral subsidiary ridges and valleys. These valleys were in turn partly filled with a basal conglomerate of Modelo (Upper Miocene) age and capped with Modelo shales. In the event the Adams area should prove structurally similar to the Playa del Rey area, it may be predicted that oil bearing sands will be found occupying only the valleys of the former erosional surface, and the intervening ridges will be entirely barren, that is, directly overlain by shales.

CALIFORNIA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EDISON—		
A. T. Jergins Trust, McCowan 13 A-6	450	1560
BUENA VISTA LAKE—		
Ohio Oil Co., K.C.L. A-7	¶5.8	4217
KERN FRONT—		
Republic Pet. Co., Fleishaker 2	360	1953
Vega Oil Co., Vega 2	40	1775
LOST HILLS—		
Associated, Williamson 1	45	1143
MIDWAY SUNSET—		
Standard, M.J.M.M. 25	95	2850
MOUNTAIN VIEW—		
A. T. Jergins Trust Texas fee 23-8	475	2115
Shell, Porter 2-5	220	6050
Standard, Calif. Lands 1	155	5064
ELWOOD—		
Honolulu Oil Corp., Permit 90-9	65	7014
EL CAPITAN—		
Shell, Covarubias 1-13	500	1536
Covarubias 1-10	100	2853
OJAI—		
Continental, Pirie 2	30	1223
MOUNT POSO—		
Union, Ford 1	*	2064
DOMINGUEZ—		
Shell, Reyes 81	510	4708
Union, Hellman 42	4200	6737
Callender 44	1150	7596
SANTA FE SPRINGS—		
Union, Alexander 32	80	3737
Bell 92	85	4565
Bell 97	660	6114
Bell 99	230	3732

*Failures; †Junked; ¶Million cu. ft. gas.

San Joaquin Active

Of the state's 30 new locations announced this week, 24 are for wells in the San Joaquin Valley, one is in the coastal region of San Benito County, and five are in the Los Angeles Basin. Activity is centered particularly in proven fields with Midway-Sunset topping the list with five new locations, followed by Round Mountain with three, and Edison, Mountain View and the Grapevine wildcat area with two each. The only well location announced for unexplored territory is that of E. R. Fantz' Cunningham 1, in Section 22-7s-16e, about 16 miles east of Merced in Merced County. The location will fall very near the contact of sediments of Eocene age upon metamorphics of Jurassic age, in the foothills of the Sierra Nevadas.

Associated Oil Company has staked a location for Murphy 1 on the Murphy Ranch in Section 5-12s-4e. This location falls about three miles southeast and across the county line from Sargent Oil field, and about one-fourth mile southwest from Shell Oil Company's Lomerias 1, which was abandoned at 4430 feet. Production in this area is from the Miocene formation, which is exposed on the north and southeast, underlain by Franciscan (Jurassic) serpentines and schists, and on the west underlain by Santa Lucia (Paleozoic) massive limestones, marbles, and schists. The Murphy lease includes a little more than 2000 acres, and under its terms the derrick must be erected by June 16.

Kern County Wildcat

Shell Oil Company's K. C. L. 1, recently completed wildcat in Section 29-30s-26e, is now flowing at the rate of 832 barrels a day of 61.3 gravity oil cutting 1.3 percent, with 13,980,000 cubic feet of gas. Flow is through 34/64-inch choke and tubing and casing pressures are 1950 pounds and 2325 pounds, respectively. This discovery is generally considered the most important in the valley in recent years and probably will tend to bolster confidence in the value of geophysical exploration for deep structures in the state. In any event, it may be expected to lead to increased drilling in areas previously believed unfavorable due to their nearness to the center of the great San Joaquin Valley geosyncline.

Shell Oil Company has announced location for Lloyd Dabney 1 at 573 feet north and 221 feet east from the intersection of the center lines of 190 Street and Inglewood Avenue. This location falls about one-half mile southwest from the Shell Oil Company's Shell McKenna 1, abandoned May 12 after drilling to 7352 feet. Top of the basal Modello conglomerate zone was cored at 7155 feet and the top of the Franciscan schist was cored at 7235 feet. Although the conglomerate zone in this well contained some oil, it was decidedly wet. It is quite probable that this new location will be drilled with the expectation that the same basal conglomerate zone may be encountered

nearer the head of the low in the eroded schist surface on which it was deposited, with a correspondingly increased chance for oil accumulation.

General Petroleum Corporation's Terminal 1, important wildcat project on Terminal Island in Los Angeles Harbor district, was completed June 11 for a temporary production test, flowing 86 barrels a day of 13.2 gravity oil cutting 12 percent. Flow is through the nine-inch casing which is cemented at 2430 feet. It is understood that the well will be killed soon and cored ahead to about 3600 feet, where better production is expected. The operator is continuing its active leasing campaign in the vicinity of the well, and Bankline Oil Company also is known to have taken a lease on 1100 acres of the Classification Yards property to the north and east. Interest in the General Petroleum Corporation's project is based on the fact that this heavy oil zone was encountered about 500 to 800 feet higher than in any other well drilled in the vicinity.

GASOLINE PLANT

Construction started on unit for Yost-Jasper

WEEKLY STAFF REPORT

Mt. Pleasant.—The O. H. Grimes Company has started construction of a casing head gasoline plant in Yost-Jasper field of Midland County, first for the pool. The Grimes Company now operates at three million cubic foot capacity plant in the Chippewa-Greendale field.

The new plant will be of similar capacity, about 5000 gallons daily, with two 250 h.p. units and one 40 h.p. unit with complete compression and absorption equipment.

Robert Chisolm, Michigan superintendent for the Grimes plants, will be in charge of construction. Completion of the plant is expected in three months.

Yost-Jasper field is controlled by Pure Oil Company. Forty-five wells are producing an average of 5000 barrels of Dundee and Traverse crude daily. Due to the one well to 20 acres spacing plan, conservation of the gas over a long period is anticipated.

Residue gas will be returned to wells for fuel and may be later utilized for a re-pressuring program.

MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
GRATIOT COUNTY—		
C. W. Collins, Tomlin 1, 11n-4w, sw nw sw 27	*	3326
Hirzel-Leland Dev., Plank 1, 11n-4w, c sw se 33	¶5	990
ISABELLA COUNTY—		
Thompson Brothers, Smith 1, 14n-3w, se se ne 3	75	3030
LENAWEE COUNTY—		
Socony-Vacuum, McCarberry 1, 5s-5e, nw ne nw 36	29	2552
MECOSTA COUNTY—		
Chas. Bell, Waldorf 1, 13n-7w, c ne ne 25	¶2	1321
Columbia Oil Co., Satterle 1, 13n-8w, c nw sw 24	¶11	1327
MIDLAND COUNTY—		
Pure Oil Co., Clark-Heirs 3, 13n-2w, se ne 2	457	3436
Balch 2, 13n-2w, se sw 2	100	3433
MONTCALM COUNTY—		
Midland-Petrol, Cornell 1, 12n-7w, c se nw 9	¶47	1300
Smeed 1, 10n-5w, se sw nw2	200	3198
Fortney Oil Co., Fisher 3, 10n-5w, ne ne ne 2	250	3198
Fisher 4, 10n-5w, ne nw ne 2	307	3201
Burnstein Oil Co., Fisher 2, 11n-5w, nw se sw 36	150	3199
United Producers, Conners 3, 11n-5w, ne sw nw 26	90	3240
OGEMAW COUNTY—		
Fortney Oil Co., County Farm 1, 22n-2e, sw sw nw 20	125	2722
SAGINAW COUNTY—		
T. F. Caldwell, Inc., McDonagh 1, 10n-5e nw nw sw 19	*	2909

EASTERN FIELDS

WEEKLY STAFF REPORT

Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
NOBLE COUNTY—		
F. N. Aiken, Inc., George Dyer 74	*	725
Elton Secrest, F. E. & A. N. Rich 4	¶	1354
T. & C. Rich, Samuel L. Murphy 4	8	1631
Harry Mosley & Co., John Blake 4	¶	1690
MONROE COUNTY—		
Newhart & Co., Blair 1	¶	....
George Reed & Co., G. & S. Reed 3	¶	1048
N. T. Stout & Co., Jackson & Griffith 2	¶	1518
F. O. Parks, F. O. Parks 1	30	1530
WASHINGTON COUNTY—		
Schneider Oil Co., Wm. Covey 7	5	1233
Walter Laufer, Wm. A. Day 11	1	1334
D. T. Orndoff, Rufus Beach 2	2	811
H. F. Tretchel, Fee 1	*	602
PERRY COUNTY—		
Preston Oil Co., F. G. Rhodes 1	10	3216
MEIGS COUNTY—		
Pearl Ash, Sam Blackwood 1	*	875
Speary & Co., Thomas Smith 5	¶	722
Meigs Dev. Co., Jennie Allen 6	¶	1884
Hattie Gandee 3	¶	1937
ASHLAND COUNTY—		
Ohio Fuel Gas Co., Leo E. Koons 1	¶	2610
RICHLAND COUNTY—		
Ohio Fuel Gas Co., Mansfield Bldg. & Loan 1	¶	2421
SENECA COUNTY—		
Industrial Gas Co., Frank Sherger 5	¶	500
Harpster & Co., M. Sendelbery 1	¶	505
HARDIN COUNTY—		
Waltermire & Co., J. H. Ziegler 1	¶	1334
Kenton O&G Co., F. E. Hamilton 2	¶	1353
WYANDOT COUNTY—		
Ray C. Jones, N. E. Schindler 1	*	1514
Kenova O&G Co., E. F. Horn 1	*	1531
PUTNAM COUNTY—		
Shipe & Perry, C. R. Rodgers 1	25	1325
WAYNE COUNTY—		
Ohio Fuel Gas Co., Grant Alleman 1	¶	3251
Noah Hockenberry 1	¶	3007
HOLMES COUNTY—		
Ohio Fuel Gas Co., Josephine Snively 1	*	2904
Hanna Tidball 1	¶	3262
Bell Bros., G. & Mary Findley 3	¶	812
SUMMITT COUNTY—		
Brooks Johnson, F. & J. Bowman 1	¶	450
COSHOCTON COUNTY—		
Upham Gas Co., Alonzo Spurgeon 1	¶	2997
STARKE COUNTY—		
East Ohio Gas Co., N. B. Keck 1	¶	4326
B. L. Albright 2	*	4340
CUYAHOGA COUNTY—		
Schneider & Wyles, Howard Simmons 1	*	2512
C. A. McMillen, Geisendorfer 1	*	....

WEST VIRGINIA

Company, Well and Location	Init. Prod. Bbls.	Depth
CABELL COUNTY—		
W. C. Kingery & Co., Harbour 1	¶	....
West Virginia Oil Co., Nichols 1	¶	....
CALHOUN COUNTY—		
Massey & Jarvis, Parsons 1	¶	....
KANAWHA COUNTY—		
United Carbon Co., Dickinson 1	¶	....
LEWIS COUNTY—		
Columbia Carbon Co., Riffer 1	¶	....
LINCOLN COUNTY—		
Big Laurell Gas Co., Plumley 2	¶	....
LOGAN COUNTY—		
Rummell & Co., Nichols & Ziebold 1	¶	....
PLEASANTS COUNTY—		
Accidental Oil Co., Dillon 3	5	....
RITCHIE COUNTY—		
Creed, Barker & Co., Barker 1	5	....
Carnegie Natural Gas Co., Tate 2	4	....
W. R. Cary, Metz 1	¶	....
CABELL COUNTY—		
Shale Gas Co., Chas. Morrison 2	¶	3678
W. C. Kingery & Co., Pratt Heirs 5	¶	1538
Kentucky-West Virginia, A. Walker 1	¶	2695
Adkins & McComes, Caldwell Heirs 1	¶	1470
CALHOON COUNTY—		
Clark Drilling Co., Meadows 1	¶	2273
H. S. Adams & Co., J. & C. Stump 1	¶	1665
KANAWHA COUNTY—		
Godfrey L. Cabot, Inc., Kanawha Land Co. 2	¶	4010
MONONGALIA COUNTY—		
Hope Construction & Refining Co., S. H. Shriver 570	¶	3300
WIRT COUNTY—		
W. C. Patterson, Hale 27	*	323

INDIANA

Company, Well and Location	Init. Prod. Bbls.	Depth
DAVIESS COUNTY—		
Oliphant & Sage, George Price 1	¶	....
DECATUR COUNTY—		
Hoosier Public Utility, Mrs. W. C. Smith 4	¶	926
HANCOCK COUNTY—		
J. Harve Snider, Ora Nicholson 1	¶	958
HUNTINGTON COUNTY—		
E. Lantz, Charles Wiley 4	25	....
KNOX COUNTY—		
Phillips Pet. Co., J. A. McAndrews 2	¶	....
PERRY COUNTY—		
Haney & Hollingsworth, Norman Jarbo 2	30	....
DAVIESS COUNTY—		
Midwest Dev. Corp., Mary Boyles 1	*	702
KNOX COUNTY—		
Myrtle Cowels, O. A. Thayer 1	*	845
PERRY COUNTY—		
A. B. Bement, Henry Hardwick 3	¶	150
Haney & Hollingsworth, Jacob Hauser Estate 1	*	660
Haney Hollingsworth, Knable Estate 1	*	....

*Failures; †Junked; ¶Million cu. ft. gas.

SPERRY-SUN WELL SURVEYING CO.
1608 WALNUT STREET, PHILADELPHIA, PA.
HOUSTON, TEXAS. TULSA, OKLAHOMA
AND LONG BEACH, CALIFORNIA
SURWEL (Gyroscopic) H-K (Open Hole) SYFO (Ink Bottle)
UNDERGROUND WELL SURVEYING SERVICE

THE OIL WEEKLY REPORT ON IMPORTANT

Wildcat Tests

ALABAMA

HOUSTON COUNTY—Rice O&G Co.'s Oakley Est. 2, 9-3n-29e, sd 3580 ft.

MOBILE COUNTY—J. C. Prine's King 1, 4-1n-4w, ow pb to 2600 ft. arr test old td 3186 ft.

ARKANSAS

BRADLEY COUNTY—Phillips Pet. Co.'s Murphy Land Co. 1, nw nw 12-17-11, 13-in csg 740 ft. Dr 2020 ft shale.

CALHOUN COUNTY—Ben Barnett, Tr's Freeman Smith 1, se nw sw 36-15-14, dr 4700 ft, shale. Proetz & Brown's Calion Lbr. Co. 1, se sw 22-15-15, 10-in csg 647 ft, dr 2500 ft.

COLUMBIA COUNTY—J. C. Buckbee, Tr's J. B. Wilson 1, sw ne 17-17-18, elev 319 ft. sd 4510 ft.

CRAWFORD COUNTY—Trumbo et al's Craddock 1, c nw ne 3-11-30, top Miss. lime 965 ft. top Wilcox 1527 ft. dr 1810 ft.

DALLAS COUNTY—Kel-Mac Oil & Roy. Co.'s Owens 2, nw sw 26-10-16, sd 1925 ft.

HEMPSTEAD COUNTY—Easton & May's Conway 1, ne sw 20-12s-27w, elev 290 ft, massive anhydrite 1913-69 ft, cored sand so 2612-23 ft. arr made drill stem test td 2623 ft.

LA FAYETTE COUNTY—A. M. Neely's Meek 1, ne nw 35-19-25, rur. Ohio Oil Co.'s Bodcaw Lbr. Co. 3, nw nw 20-16-23, elev 250 ft, cored oolitic lime porous 7666-97 ft, tested show gas & 2200 ft sw in drill stem test in 12 minutes, sd 7707 ft. top Permian.

LITTLE RIVER COUNTY—Roberts et al's Hall 1, se se 22-13-29, wodd, td 1950 ft.

LONOKE COUNTY—Frank F. Silver's Jos. Chambers Est. 1, sw ne nw 17-2-27, sd 1610 ft. hd shale. elev 229.2 ft.

MILLER COUNTY—King Oil Corp's Mann 1, 2-16-26, 10-in csg 200 ft. Dr 575 ft, shale. Deep Rock Oil Co.'s Williams 1, nw sw nw 6-16-25, top Nacatosh 1270 ft. dr 3570 ft.

OUACHITA COUNTY—Rhoda Armstrong's Bragg 1, se nw 25-13-18, 12¼-in csg 52 ft. dr 1016 ft shale. Carnes & Harrell's Robertson 1, nw se 7-12-19, elev 176 ft. top Nacatosh 1404 ft. sd 2487 ft. Chert. O. F. Whittaker's Howard 1, nw ne 20-12-16, dr 2475 ft. Sand. Lion O. R. Co.'s Reynolds-Berg 1, se ne 28-15-15, dr 4705 ft. Phillips Pet. Co.'s Arnold 1, ne sw 27-15-15, dr 3840 ft sandy shale. Phillips Pet. Co.'s Cheatham 1, sw ne 27-15-15, dr 3504 ft. Shale and lime. Phillips Pet. Co.'s J. M. Farris 1, sw ne 27-15-15, rur. Phillips Pet. Co.'s Rose 1, ne se 28-15-15, dr 2710 ft. Shale. Phillips Pet. Co.'s Harris 1, sw ne 28-15-15, dr 4760 ft. Sandy lime. Phillips Pet. Co.'s Mary Murphy 1, ne ne 28-15-15, dr 2020 ft. Mary Murphy 2, ne ne 28-15-15, lcn. Standard Oil Co. of La.'s Reynolds B-3, se ne 27-15-15, woc, 8⅝-in csg, 4892 ft, td 4912 ft; Reynolds B-4, nw sw 27-15-15, mim. American Liberty Oil Co.'s (Jno. Pugh), Hildebrandt 1, se se 28-15-15, cored saturated Permian lime 4911-14 ft. arr set csg. td 4914 ft. J. E. Crosbie, Inc's Sewell 1, sw ne 33-15-15, mim.

UNION COUNTY—J. C. Buckbee, Tr's Ezzell 2, ne nw 13-17-15, coring 4700 ft, red shale.

CALIFORNIA

CURRY MOUNTAIN—Standard's Camino 1, 1-21-15, laying water lines.

CANTUA CREEK—Western Gulf's S.P.L. Co. 3, 3-17-15, dr sand and shale 6233 ft.

KERN COUNTY

KERN COUNTY — American Explor. Co.'s No. 1, 16-28-27, 2862ft, wocs 8⅝-in at 2813 ft.

POSO CREEK—Bargol Oil Co.'s Bargol 1, 11-27-27, dr shale 2600 ft.

SO. MARICOPA—E. A. Bender's Robinson 1, 14-10-23, dr shale 5956 ft.

DEVIL'S DEN—Den Pet. Co.'s Bates 1, 20-25-19, rig.

ELK HILLS—Elk Hills Pet. Corp.'s No. 1, 14-31-24, rur.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
b.s.—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg.—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper.*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so & g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

GRAPEVINE—Hall-Baker Co.'s No. 1, 12-10-19, spud 6/12.

MT. POSO—R. S. Lytle's Dorsey 3, 26-27-28, td 1438 ft, bailing.

POSO CREEK—McAdams Oil Co.'s No. 1, 32-27-28, rig.

DOMINION — Modoc Pet. Co.'s Vedder-Bowles 2, 21-26-28, rur.

MOUNTAIN VIEW—Mohawk Oil Co.'s Earl Fruit 1, 16-31-29, dr sand and shale 4168 ft.

STRAND—Ohio's K.C.L. D-1, 1-30-25, dr sand and shale 8213 ft.

GRAPEVINE—Ohio's T.I.T. 1, 36-11-19, dr sand and shale 3470 ft.

EDISON—Pioneer Holding Co.'s Pioneer 2, 17-30-30, sd 2109 ft.

MOUNT POSO—Poso Pet. Co.'s No. 1, 2-27-27, sd 2004 ft.

GRAPEVINE — Reserve Oil & Gas Co.'s Ritchie 33-2, 33-11-19, rigged up; Tejon 2-6, 2-10-19, rur.

NO. BELRIDGE—Rio Grande Oil Co.'s Layman 1, 18-28-20, lcn.

EDISON—R & B Dev. Co.'s R & R 3, 32-30-30, dr 859 ft, top granite 770 ft.

DOMINION — Santa Carla Oil Co.'s Bass-Goodknight 1, 19-26-28, dr brown shale 1150 ft.

KERN RIVER—Seven Spot Oil Co.'s No. 1, 13-20-27, dr shale 1060 ft.

LOST HILLS—Standard's United 1, 2-26-20, dr gray sand 6567 ft.

COMANCHE POINT—Tejon Ridge Oil Co.'s Tejon 1, 23-32-29, sd 2394 ft.

SAN EMIDIO — The Texas Co.'s K.C.L. C-11-49, 11-11-22, td 7622 ft, co at 4416 ft.

MOUNTAIN VIEW — Treasure Dr. Co.'s Treasure 1, 12-30-28, dr hard shale 5314 ft.

MT. POSO—Union's Tribe 11, 28-27-28, rur.

McFARLAND—Woods & Bailey's No. 1, 16-26-26, sd 4488 ft.

MISCELLANEOUS

HUMBOLDT COUNTY — The Texas Co.'s No. 2, 22-3-1, td 4357 ft, fsh.

KINGS COUNTY—Associated's No. 1, 35-23-17, bldg dk. Herndall & Associates' Spreckles 1, 16-24-18, co td 4201 ft.

MADERA COUNTY—Pure's Chowchilla 4, 20-10-14, rigged up.

MERCED COUNTY — E. R. Fantz's Cunningham 1, 22-7-16, lcn.

SAN BENITO COUNTY—Associated's Murphy 1, 5-12-14, lcn.

SAN LUIS OBISPO COUNTY—Avila Oil Co.'s No. 1, 10-31-13, material. Barnsdall's Wreden 1, 24-28-17, td 3460 ft, fsh. Birch-Royer Oil Co.'s Patchell 1, 33-31-13, td 1840 ft, redr, 1540 ft. Pismo Pet. Co.'s Scott 2, 5-32-13, grade. J. C. Theriot's Holland 1, 22-32-23, sd 2135 ft. Willett Oil Assn's Jack 2, 10-25-15, sd 3648 ft.

SOLANO COUNTY — Amerada's Emigh 1, 26-4-2, dr sand and shale 4445 ft.

TEHAMA COUNTY—Northern Co.'s Pet. Co.'s Ewers-Mooney 1, 25-24-3, dr hard sand and shale 7770 ft.

TULARE COUNTY—W. H. Fortine's Mosesian 1, 22-27-26, dr sand and shale 1905 ft.

MONTEREY COUNTY—North Dome-Cholame Hills Oil Co.'s Hillman 1, 15-24-14, rig. Shell's Branch 1, 34-24-10, td 8994 ft, plugging back to test.

SANTA BARBARA COUNTY

COAL OIL POINT—Bankline Oil Co.'s No. 2, permit 191, td 5510 ft, redr at 1720 ft.

SANTA MARIA—Hall-Baker Co.'s Preisker 5, 12-9-34, dr 1800 ft.

EL CAPITAN—La Canada Oil Corp.'s No. 1, 35-5-30, td 737, top Vaqueros 497 ft, sd.

LOMPOC—Lompoc Pet. Co.'s Beauterbaugh 2, 18-7-34, sd 3940 ft.

BETTERAVIA—E. H. Moore's Union Sugar A-1, 25-10-35, dr shale 3870 ft.

LOMPOC—York Oil Co.'s York 3, 33-8-34, setting boilers.

VENTURA COUNTY

SHIELLS CANYON—Bankline Oil Co.'s Calumet B-1, 3-3-19, td 4617 ft, reperforated 4484-4560 ft, to test.

BARDSDALE—Bestco Pet. Co.'s Frey 1, 2-3-19, td 4010 ft, ran formation tester, flowed at 450 bbl rate, dr ahead.

PIRU—Bolsa Chica Oil Corp.'s Snow 3, 4-4-18, dr hard shale 2980 ft; Snow 4, wocs 13⅜-in at 575 ft.

SO. MOUNTAIN—Calco Pet. Corp.'s Calco 3, 17-3-20, td 3465 ft, landed 8⅝-in on bottom, will perforate.

OXNARD—General Pet. Corp.'s McGrath 2, 26-2-35, dr hard shale 7644 ft.

SO. MOUNTAIN — Honolulu Oil Corp.'s Hobson 1, 23-2-21, grade.

SESPE CANYON—Merchants Pet. Co.'s No. 1, 1-4-20, grade.

SHIELLS CANYON—Petroleum Securities Co.'s Home Ranch 3, 3-3-19, dr soft sandy shale 3663 ft (Bardsdale). Elkins 1, 7-3-19, dr hard shell 5626 ft. The Texas Co.'s Shiells 129, 4-3-19, sd 4812 ft, No. 130, td 3310 ft, to run formation tester; No. 131, dr 2986 ft.

VENTURA—Ventura Explor. Co.'s Sexton 1, 30-3-22, dr gray sand and shale 7410 ft.

SOUTHERN CALIFORNIA

NEWHALL—Barnsdall's Rancho S. F. 1, 26-4-17, lcn.

ARTESIA—M. T. Bernstein's Millard 1, 25-3-12, dr soft sand 4124 ft.

NO. LONG BEACH—Geo. L. Clayton's No. 1, 31-3-12, sd 6765 ft.

TORRANCE—Codri Oil Co.'s No. 1, 28-4-13, td 3902 ft, washed with acid, to test on pump. Eyer Pet. Corp.'s No. 1, 20-4-13, td 3794 ft, bailing mud, water and some oil, J. S. Hull's No. 1, 20-4-13, dr shale 2572 ft, cored os at 2250 ft.

WILMINGTON—General Pet. Corp.'s Terminal 1, td 2694 ft, tested good for 96 bbls 13.2 gravity oil, cut 12 percent. Harbor Dr. Co.'s No. 1, 33-4-13, td 3566 ft. Flowing some oil 17.6 gravity and water.

NEWHALL—Holnrook Pet. Corp.'s No. 1, 26-4-16, rur. Yant Pet. Corp.'s Yant 5, 1-3-16, td 2022 ft, plug set, sd.

PUENTE—McVicar-Rood's Sentous 1, 6-2-9, dr shale streaks shale, slight cut, 2405 ft. Numac Oil Co.'s Rowland 2, 14-2-10, td 2545 ft, to test on pump.

PALOS VERDES — Pamaco Royalty Co.'s Burkhard 1, 2-5-14, dk.

ROSECRANS—Republic Pet. Co.'s Trust 1, 18-3-13, dr shale 3470 ft.

EL NIDO—Shell's Lloyd-Dabney 1, 33-3-14, lcn.

DOMINGUEZ—West American Oil Co.'s Del Amo 1, 3-4-13, dr sand and shale 8850 ft.

ORANGE COUNTY — Calif. Eastern Oil Co.'s Verde 1, 35-3-9, td 3181 ft, co to bottom, to deepen. Commander Oil Co.'s Mesa 1, 29-6-10, td 2121 ft, pumping a little heavy oil and water. Hillman & Long's No. 1, 14-5-11, td 7701 ft, wocs 8⅝-in at 5585 ft. Geo. Terry's Gun Club 1, 17-5-11, td 5200 ft, waiting on 4-in dr pipe.

SAN BERNARDINO COUNTY—Equitable Pet. Explor. Co.'s No. 1, 11-10-5, dr hard sand and conglomerate 2343 ft. Tehama Pet. Co.'s Kraemer-Backs 2, 33-2-9, td 560 ft, running 12½-in; Pellisier 1, 4-3-8, dr shale 424 ft.

COLORADO

ADAMS COUNTY—Glenridge Oil Co.'s Hills 1, csl se se 27-3s-64w, td 4252 ft, dr cut cement. Riddle Petroleum Co.'s Baxter 1-C, sw 2-3s-6e, rig going up; Edwards 1, sw sw sw 15-3s-66w, suspended.

ARCHULETA COUNTY—Wm. E. Hughes Estate Fee 7, ne se se 24-33n-2e, nearing completion.

HUERFANO COUNTY—Collins & Quinn Fee 1, cnl nw se 4-28s-68w, suspended, 3950 ft.

JEFFERSON COUNTY—Ruby Hill Oil Co.'s Braden 1, se se 24-4n-69w, td 4450 ft. Ur 5 3/16-in. csg to bottom.

LARIMER COUNTY—Continental Oil Co.'s Buckeye U. P. 8, cne sw 31-10n-68w, ru.

PARK COUNTY—South Park Oil Co.'s State 1, se se sw dr 4475 ft, with 6¼-in. csg set at 4460 ft. South Park Oil Co.'s LeBert 1, ne ne nw 21-11s-75w, spd 100 ft.

WASHINGTON COUNTY—Indian Territory Oil Co.'s Foster Min. Corporation Vance 1, cne ne 28-1s-49w, spd.

WELD COUNTY—Continental Oil Co.'s State Bank of Trenton 1, csw ne 21-8n-59w, dr 5700 ft.

FLORIDA

HILLSBOROUGH COUNTY—Southern Pet Co.'s Mizell & Williams 2, se ne 4-32s-21e, sd 965 ft.

JACKSON COUNTY—Mrs. Mamie Hammonds et al's Grandberry 1, sw ne 15-5n-9w, lub stuck drill pipe td 700 ft, sand.

LAKE COUNTY—Oil Dev. Co. of Fla's Gulf Expl. Co. 1,

KANSAS

BARBER COUNTY—Sinclair Prairie's Gentry 1, ne ne ne 1-33s-15w, rig.

BARTON COUNTY—Davison et al's Birzer 1, sw se sw 22-17s-12w, dr 3202 ft. Schermerhorn Oil Co.'s Hunter 1, ne ne ne 29-18s-15w, pb 3543 ft. Wakefield & Johnson's Bumm 1, sw ne ne 22-19s-12w, fsg 2195 ft. Rosespring Drlg et al's Rick 1, sw sw sw 1-19s-11w, dr 845 ft. Brouk et al's Deil 1, se se ne 11-16s-15w, ru. Rose & Lant's Redetzke 1, ne nw nw 10-16s-11w, dr 365 ft. Bailey et al's Hammeke 1, ne ne sw 12-18s-12w, rig.

BUTLER COUNTY—Ellis et al's Pettit 1-A, se se nw 21-28s-6e, sd 3080 ft. Rex & Morris' Olson 1, nw sw se 15-28s-6e, dr 2430 ft. McGinnis et al's Hinnen 1, ne ne sw 18-24s-4e, dr 1855 ft. Solomon's Church 1, sw ne se 8-28s-5e, dr 50 ft. Estes et al's Edgar 1, nw nw se 1-28s-8e, fsg 1030 ft.

COWLEY COUNTY—Wakefield et al's Daniel 1, se sw se 3-30s-3e, sd 3145 ft. Braden Prod Co.'s Sparks 1, se se nw 35-33s-4e, dr 2218 ft. McKnabb's Community 1, cne nw 14-34s-3e, dr 1850 ft. Benedum & Trees' Carson 1, sw sw nw 8-30s-4e, dr 2925 ft. Morton et al's Roger 1, se se ne 1-31s-4e, sd 910 ft.

DECATUR COUNTY—Winkler-Koch's Vessey 1, cnw se 26-3s-26w, rig.

EDWARDS COUNTY — Stanolind - Elwell's Donovan 1, cse se 14-25s-18w, dr 4170 ft.

ELLIS COUNTY—Jones Brs. & Carpenter et al's Solomon 1, se se sw 28-11s-19w, cored 3593 to 3622 ft, td 3632 ft, 1500 ft oih. Bridgeport Mach & J. J. Hall's Madden Estate 1, ne nw nw 26-15s-18w, co 3010 ft. Harris & Haun et al's Schmeidler 1, se se sw 3-13s-17w, so 3309 ft. Rosespring et al's Union Pacific 1, ne ne ne 9-13s-20w, fsg 3463 ft. Empire's Herl 1, se se se 22-15s-19w, dr 2240 ft. Twin Drlg Co.'s Copeland 1, ne ne sw 26-14s-19w, cored 3710 ft. James Brouk et al's Jacobs 1, nw nw se 31-15s-16w, ru. Parrish & Dennam's Walter 1, se sw se 14-13s-17w, dr 2665 ft. Trigg et al's Armbrister 1, se se sw 6-11s-19w, wocs. Jones & Shelbourn's Gunther 1, se se sw 9-11s-19w, dr 795 ft. Vickers Pet Co.'s Kraus 1, sw sw nw 22-14s-19w, dr 2763 ft. Twin Drlg et al's Schmidt 1, sw sw ne 22-15s-17w, ru. Bradley Oil et al's Penny Wann 1, se se se 13-15s-20w, dr 1645 ft. Empire O & R Co.'s Samuelson 1, ne ne sw 31-11s-16w, br. Kansas Development Co.'s Haller 1, se se nw 10-11s-18w, mim. Bridgeport Machine's Ubert 1, ne ne nw 12-13s-18w, rig. Philham Oil Co.'s Gerstner 1, sw sw se 24-14s-17w, br.

ELLSWORTH COUNTY—York State Oil Co.'s Koestle 1, nw nw se 12-17s-9w, rig. Roy Ramsey et al's Gregory 1, sw sw se 25-16s-9w, ru.

GRAHAM COUNTY—Vickers & Phillips' Hutton 1, ne ne se 29-8s-22w, co 3440 ft. Moah & Young's Hills 1, nw se se 19-10s-21w, rig.

GREENWOOD COUNTY—McGinnis' Lampe 1, nw ne sw 26-24s-8e, dr 1200 ft.

HARVEY COUNTY—Harburney Co.'s Scrag 1, nw nw se 24-22s-3w, set 8-in csg 2870 ft, co. Shawver's Judd 1, sw se ne 3-24s-2e, dr 1535 ft.

HASKELL COUNTY—Kuhn Bros. et al's Nilson 1, sw sw se 21-28s-32w, dr 2021 ft.

KINGMAN COUNTY—Lauck et al's Prather 1, cse 18-27s-8w, dr 2689 ft. Oklahoma Oil Corp et al's Reeves 1, nw nw nw 29-27s-5w, dr 3912 ft.

McPHERSON COUNTY—Empire's Cunningham 1, se se se 26-18s-1w, set 8-in csg 2840 ft. Johnson et al's Johnson 1, sw sw nw 33-17s-1w, set 10-in csg 2045 ft. Hawkins et al's Ritikofer 1, ne ne se 2-20s-1w, ru.

NESS COUNTY — Continental Oil Co.'s Thompson 1, ce½ e½ sw 13-18s-26w, td 4462 ft, est 150 bbls; Newton Dev. Co.'s Tenny 1, nw nw se 19-18s-25w, spd & sd.

RENO COUNTY—Rosespring et al's Swanson 1, ne ne nw 1-23s-5w, dr 472 ft. Graham et al's Miller 1, ne ne se 36-25s-10w, rr. Dickey Oil Co.'s Shepherd 1-A, ne ne nw 22-26s-9w, sd 4153 ft. Miller et al's Detter 1, ne se nw 28-22s-7w, dr 305 ft.

RICE COUNTY—Gilmac Co.'s Sargent 1, se se se 31-18s-6w, ur 8-in csg 2610 ft. Duwe & Schneider's Wright 1, ne ne ne 36-21s-7w, dr 3460 ft. Simpson & Noble et al's Pulliam 1, cs½ n½ ne 35-19s-8w, set 7-in csg 3228 ft. Skiles et al's Stout 1, se se se 6-21s-9w, dr 3150 ft. Beardmore et al's Fuller 1, sw sw se 23-18s-7w, sd 3340 ft. Simpson-Noble & Stanolind's Bowman 1, sw sw nw 22-19s-10w, rust 3286 ft. Shell's Maughlin 1, ne nw se 11-20s-8w, coring. Shell et al's Hafferman 1, cn½ n½ se 6-19s-9w, rust 3193 ft. Saco Oil et al's Haxton 1, nw nw ne 30-19s-8w, lcn.

ROOKS COUNTY—Murfin et al's Westhusin 1, ne ne se 12-6s-18w, dr 3312 ft. Skaer Oil Corp & Reese's Dryden 1, ne ne ne 28-10s-17w, dr 2960 ft. Lester & Dean's Burtt 1, se se ne 29-10w-20w, dr 1810 ft. Shoemake's Stebbins 1, ne ne sw 26-7s-17w, dr 1180 ft. Helmerich & Payne's Bedard 1, cne 20-9s-19w, dr 400 ft. L. C. D. Drlg. Co. et al's Westhusin 1, cne se 11-9n-17w, dr 143 ft. Hartman & Blair et al's Hall 1, nw nw nw 25-10s-17w, td 525 ft, wocs.

RUSH COUNTY—Pryor & Lockhart's Stegman 1, sw nw ne 11-16s-17w, fsg 3130 ft. Boyle & Grossman's Wilson 1, ne ne ne 33-17s-19w, rng 8-in csg 2895 ft. National Ref. Co.'s Werth 1, nw ne ne 7-16s-18w, td 3572 ft, pumped 22 bbls oil 16 hrs.

RUSSELL COUNTY—Berry et al's Cook 1, ne ne se 19-11s-13w, ru 5-in csg 3533 ft. Eisenhour & Shaffer's Humes 1, sw sw sw 6-14s-12w, sd 3407 ft. Darby Pet & Continental Oil Co.'s Letsch 1, se ne nw 34-14s-13w, td 3265 ft, pb 2880 ft, dr cement. Wakefield et al's Krug 1, ne nw sw 7-15s-14w, td 2715 ft, wocs. Coralena Oil Co.'s G. M. Sellens 1, sw se sw 20-15s-13w, good show of oil at 3035 ft. Hartman & Blair's Johnston 1, nw nw nw 11-13s-14w, sd 1000 ft. Lario O. & G. et al's Steinert 1, nw nw sw 21-15s-15w, td 883 ft, wocs. Reynolds' Fredrickson 1, se sw se 6-13s-12w, td 3170 ft, pb 3040 ft, 2000 gals acid, no test. Hartman & Blair's McAllister 1, sw sw se 24-13s-15w, dr 2890 ft. Armer et al's Maier 1, ne nw ne 20-15s-14w, spd. Central Pet. Co.'s Benso "C" 1, se se sw 9-14s-15w, td 3308 ft, pb 3120 ft. Lee & Reser's Penix 1, sw sw se 13-14s-13w, mim.

SALINE COUNTY — James Brouk et al's Othelander 1, ne nw se 10-16s-3w, spd & sd.

SEDGWICK COUNTY—Joe Aylward et al's Harrison 1, se se sw 23-25s-2e, dr 2755 ft. Lauck's Parke 1, se se ne 17-25s-2e, dr 3259 ft. Wakefield et al' Howard 1, se se ne 25-25s-2e, cellar.

SUMNER COUNTY — Matthews & Derrington's Berry 1, nw nw se 14-35s-1e, sd 3022 ft. Wilson et al's Clark 1, csl nw 15-35s-1w, dr 4300 ft. Craft & Wilson's Nevitt 1, ne nw ne 36-32s-2e, dr 3225 ft. Pryor & Lockhart et al's Knowles 1, sw sw sw 30-30s-1e, dr 3908 ft. The Texas Co.'s Reed 1, ne se se 11-31s-1w, dr 1684 ft.

TREGO COUNTY — Central Commercial's Wagg 1, nw nw se 17-13s-21w, dr 4191 ft. Hall et al's Deines 1, se se se 12-13s-24w, dr 1390 ft.

WOODSON COUNTY—Foster et al's Timm 1, se nw ne 36-25s-13e, sd 1465 ft. Sheedy's Abbott 1, ne ne se 16-25s-14e, set 6-in csg 1430 ft. Sheedy et al' Fuhlhage 1, sw se sw 27-25s-14e, dr 750 ft. Lester et al's Weidie 1, ne ne se 17-25s-14e, sd 675 ft.

SOUTH LOUISIANA

ACADIA PARISH — Magnolia's Homeseekers 1, Esterwood prospect, sec 54-10s-1w, dr shale 9111 ft.

ALLEN PARISH—Humble's J. A. Bel 2, Reeves prospect, sec 28-6s-7w, dr shale 3004 ft.

CALCASIEU PARISH—Fred Oil Co.'s Faist 2, sec 26-8s-10w, dr shale 4122 ft. Wheeler Oil Co.'s School Land 1, East Lake Charles prospect, sec 16-9s-7w, abn 7160 ft.

CAMERON PARISH—Magnolia's Hebert 1, Big Lake, sec 13-12s-9w, set 7-in csg 8618 ft, woc.

EAST BATON ROUGE PARISH—Cavalier Oil Co.'s Vignes 1, ne of Nettie, sec 40-8s-2e, ru.

EAST FELICIANA PARISH—East Feliciana Oil Corp.'s West & Duding 1, sec 37-1s-1w, sd 15 ft.

IBERIA PARISH—Texas Co.'s State Fausse Point 2, Fausse Point, sec 35-11s-8e, dr shale 2670 ft.

JEFFERSON DAVIS PARISH—Shell's Lacassine 1, Hayes prospect, sec 20-11s-5w , sd 9844 ft. Stanolind's Calcasieu National Bank 1, South Jennings prospect, sec 15-10s-3w, woc 2150 ft. Strake Pet. Corp.'s Miller Estate 1, Woodlawn prospect, sec 7-9s-5w, dr shale 6587 ft.

ST. BERNARD PARISH—John Cartwright's Nunes 1, e of New Orleans, sec 10-13s-12e, dr shale 1950 ft.

ST. JAMES PARISH—Shell's Colonial Sugar 1, Convent prospect, sec 5-12s-5e, pb from 7522 ft in salt, dr sand 2783 ft.

ST. MARTIN PARISH—Texas Co.'s Lake Mongouloi 2, Lake Mongouloi salt dome, sec 14-10s-9e, dr shale 6300 ft; St. Martin Land Co. 8, Henderson prospect, sec 9-8s-7e, dr shale in sdtr hole 7508 ft.

TERREBONNE PARISH — Humble's Continental Fur Co. 1, Bayou Terrebonne prospect, sec 30-17s-14e, ne report. John P. Bech's Realty Owners 1, Houma Townsite prospect, sec 103-17s-17e, sd 322 ft.

VERMILION PARISH—Continental's Hebert 1, Abbeville prospect, sec 20-12s-3e, dr shale 9345 ft.

WEST FELICIANA PARISH—Southern Minerals Corporation's Wood 1, Weyanoke prospect, sec 54-1s-4w, dr gumbo 1300 ft.

NORTH LOUISIANA

BIENVILLE PARISH — Rondeau et al's Locke 1, ne nw ne 9-15n-10w, elev 180 ft, rur. Walters et al's Davis 1, 3-16n-9w, dk.

BOSSIER PARISH—Bowman-Tidwell's Nattin 1, 15-22n-14w, sd 1650 ft. Humphreys et al's Bulkley 1, 36-21n-13w, elev 212.3 ft sw, abn 2306 ft, skid over for new hole. Producers O. & G. Co.'s J. A. Skannal Est. 1, sw sw 22-17n-12w, 10-in csg 1304 ft, dr 3141 ft hd shale, lime & sand. Triangle Drlg. Co.'s H. L. Skannal 2, sw se 23-17n-12w, 12½-in csg 252 ft, elev 216 ft, dr 2065 ft. United Gas Pub. Serv. Co.'s Skannal Est. D-1, 22-17n-12w, cemt 9⅝-in csg 3828 ft.

CADDO PARISH—Pyramid O. & G. Co.'s Wheeler A-1, 16-18n-16w, elev 250 ft, tested sw at 4850 ft, arr deepen td 5210 ft. J. B. Hutchinson Tr.'s Colquitt 1, 28-16n-13w, mim. Forbing-Persian Oil Co.'s Cupples 1, 24-16n-13w, rur. Prairie River Oil Co.'s (J. E. Smitherman et al), Hutchinson 1, sw nw 15-15n-12w, mim. R. E. Dalton's Leon Noel 1, sw se se 4-21n-14w, lcn.

CATAHOULA PARISH—Ray McDermott's La. Cent. Lbr. Co. 1, nw nw 15-10n-5e, spd.

CALDWELL PARISH—Critchett & Wood's La. Cent. Lbr. Co. 1, 18-11n-3e, sd 1310 ft. Scott et al's Taylor 1, 20-14n-4e, dk. G. W. Leigen's La. Cent. Lbr. Co. 6, ne ne 18-14n-3e, rur.

CLAIBORNE PARISH—Sugar Creek Synd. et al's Darrett 2, 31-20n-5w, elev 324 ft, fsh 7655 ft. E. T. Oakes' Patton Est. 2, ne ne

THE IMPROVED CURTIN CENTRIFUGE

Gets Accurate Results

QUICKLY, and with LESS EFFORT

You can maintain the required speed for the period of the test with much less effort. They are heavy duty type, rigidly constructed, and extremely simple in design. The cranks and heads for 15 c.c. and 100 c.c. machines are interchangeable.

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No. 3480 W. H. CURTIN & COMPANY, INC.

HOUSTON, TEXAS

1-20n-5w, elev 357 ft, base massive anhydrite 4238 ft, cored lime sg 4238-59 ft, sd for water td 4259 ft.

DE SOTO PARISH—W. F. Hyde's Ramsey 1, se nw 36-11n-11w, owdd, td 210 ft. Jas. E. Carlson's Garland 1, nw nw 7-14n-14w, rur.

FRANKLIN PARISH—S. C. Jensen's Bailey 1, 12-11n-6e, sd 1435 ft.

GRANT PARISH—Tri-State Dev. Co.'s Ethridge 1, ne ne 19-7n-3e, woc 10-in surf csg td 280 ft.

JACKSON PARISH—Zeigen et al's La. Cent. Lbr. Co. 5, ne nw 13-14n-2w, owdd, td 1770 ft.

LINCOLN PARISH—Lide & Greer's S. Gardner 1, 10-17n-4w, coring 6463 ft, gray shale, streaks of red shale.

MOREHOUSE PARISH—Henry E. Rondeau et al's Clark 1, se ne 10-20n-7e, elev 90 ft, rur.

NATCHITOCHES PARISH—B. C. Morrison's Moffet 1, sec 19-10-10w, spd 10-in csg 110 ft.

RAPIDES PARISH—Texas Co.'s Weil 1, 53-1s-2e, 18⅝-in csg 80 ft, 10¾-in csg 1422 ft, oil sand 5658-77 ft, tested 11 bbls oil per hour through choke ½-in on top ⅜-in on bottom, cemtd 7-in csg 5645 ft, testing td 5677 ft.

RICHLAND PARISH—J. F. Morrisey's W. T. Jones 1, 15-18n-7e, dr 1948 ft. Arthur H. Wray's Slocum 1, 10-17n-6e, coring 2480 ft.

RED RIVER PARISH—H. D. Conley et al's Long-Bell 1, ne ne 19-13n-9w, dr 3065 ft after testing sw at 2880 ft. T. B. Shaw et al's Teekel 1, 34-13n-10w, 7-in csg 2500 ft, tested so, sg & sw 2830 ft, arr pb.

SABINE PARISH—Keen et al's Long-Bell 1, 5-8n-13w, rur. Whitehurst et al's Whitney Corp. 1, nw ne 8-9n-13w, 9⅝-in csg 3234 ft.

TENSAS PARISH—H. M. Jones' Chicago Mill & Lbr. Co. 1, nw sw nw 29-12n-10e, base Jackson 776 ft, woc 8⅛-in csg at 776 ft, td 779 ft. Clara Nook Plant. 1, nw sw 32-12n-10e, rur.

UNION PARISH—Lent, Sears & Bocher's Frost Lbr. Co. 1, nec 27-21n-1e, temp abn 4545 ft (Travis Peak).

WEBSTER PARISH—Ohio Oil Co.'s R. L. Holloway 6, ne sw 23-21n-10w, elev 210 ft, oil blowout while coring 8369 ft, brought under control arr, core td 8369 ft (Permian lime). W. C. Feazel et al's Hooper 1 (formerly J. L. Edwards test), 8-17n-9w, sd 3016 ft. Red Hawk Oil Co.'s Baker 1, se nw 9-22n-9w, woc 12-in csg 200 ft. Skidmore et al's Barnette 1, nw sw 29-17n-9w, spd.

MICHIGAN

ALPENA COUNTY—C. W. Teater, Nevins 1, 32n-6e-18, dr 1200 ft.

BAY COUNTY—H. L. McEvoy's Glander 1, 14n-3e-18, csg 8-in at 850 ft. A. H. Webber, De Long 1, 16n-3e-35, dr 2100 ft.

CLINTON COUNTY—Petroleum Exploration, Cable 1, 5n-2w-12, sd 2920 ft.

CHIPPEWA COUNTY—F. D. Barton, Kretan 1, 41n-7e-17, dr 790 ft.

CRAWFORD COUNTY—T. F. Caldwell, Inc., Huston 1, 25n-1w-7, dr lime 2766 ft.

CLARE COUNTY—Fortney Oil Co., Neville 1, 17n-3w-19, dr 2350 ft. Fred Seigle's Fee 1, 17n-5w,26, sd 1165 ft.

GLADWIN COUNTY—Goll, Graves, Mechling's Oard 1, 18n-1w-25, sd 1150 ft; State 1, 19n-2e-30, sd 1300 ft; Wixom 1, 17n-1w-35, sd 1425 ft.

GRATIOT COUNTY — Oil Finders, Inc., Stahl 1, 11n-2w, nw nw nw 28, rig. Harley William's Smith 1, 9n-2w-29, dr 2300 ft. Associated Petroleum Co., Yeitzey 1, 10n-4w, se se sw 26, sp.

IONIA COUNTY—Frank Lyon, Geiger 1, 8n-8w-29, dr 2970 ft. Terry Dale, Inc., Tew 1, 6n-7w-12, dr 2860 ft.

KENT COUNTY—James S. Barton, Smith 1, 10n-10w-29, dr 2800 ft. Michigan Exploration Co., Croff 1, 7n-9w-35, dr 3050 ft.

LAKE COUNTY—C. W. Teater's McCabe 1, 20n-12w-26, dr 2100 ft.

MASON COUNTY—Northern Development, Burke 1, 17n-15w-26, dr 2400 ft. Sylvania Oil Co., Campbell 1, 17n-15w, ne sw sw 10, lcn. Dragoon Development Co., Young 1, 17n-15w-15, sd 2520 ft.

MONTCALM COUNTY—Terry Dale, Inc., Higgins 1, 9n-8w-13, dr 550 ft. Robert Gallagher's Bentley 1, 11n-7w-33, dr 750 ft. K. B. Montigel's Loree 1, 9n-5w, ne sw nw 18, dr 79 ft. W. E. Voss, Tr. Bristol 1, 10n-8w-23, dr 2000 ft.

SAGINAW COUNTY—B. J. Skinner, Sheldon 1, 10n-3e-11, sd 2881 ft.

TUSCOLA COUNTY—V. R. Kirkham, Boyce 1, 14n-7e-24, testing so, 2790 ft.

MISSISSIPPI

CLAIBORNE COUNTY—Claiborne Oil & Gas Drlg Co.'s Crawford 1, 6-13n-4e, elev 115 ft. sr td 925 ft. Claiborne County Dev. Co.'s Ruth Hayden 1, 56-11n-2e, lcn.

HINDS COUNTY—Chichester et al's Gervin 1, 11-5n-4 w, lcn.

JONES COUNTY—Snow-Black Pet. Co.'s Fox 2, 31-7n-12w, sg & sw in ds test 3381-95 ft, coring 3512 ft.

LAMAR COUNTY—Snow-Black Pet Co.'s Miller et al 1, ne ne sw 3-4n-15w, sd 1750 ft.

SMITH COUNTY—Howie & Lewis' Broadfoot 1, 15-4n-7e, co to deepen 1500 ft.

WILKINSON COUNTY—T. S. Stoneman et al's L. T. Ventress 1, 38-2n-3w, lcn.

MONTANA

FERGUS COUNTY—Judith Operating Co.'s Government 2, w nw ne 35-22n-17e, dr 1475 ft. Minnesota Oil Co.'s Fenholt 1, se nw sw 24-21n-18e, sd 1100 ft. R. C. Rowland's Government 3, cel ne sw 18-17n-24e, dr 410 ft.

GLACIER COUNTY—L. P. Jackson and Stanley Gray's Dunbar 1, nw se nw 22-34n-7w, dr 3340 ft.

JUDITH BASIN COUNTY—Fletcher P. Hunt's Hobson 3, nw se ne 30-14n-15e, dr 360 ft.

PONDERA COUNTY—Gordon Campbell Hughes 1, nw ne nw 12-30n-4w, dr 1700 ft.

TETON COUNTY—R. C. Tarrant's Wellenstein 1, nw nw sw 9-27n-5w, dr 100 ft.

OKLAHOMA

ATOKA COUNTY—Riverland O. & G. Co.'s Jones 1, sw sw ne 4-3s-9e, dr 2522 ft. Prairie Investment Co.'s Cobb 1, sw ne nw 19-3s-11e, dr 145 ft. Phelps & Coats et al's Fidelity 1, se sw nw 23-1s-12e, dr 600 ft.

BECKHAM COUNTY—Jo-Gail Drlg Co.'s Gilliland 1, cne ne 3-8s-26w, mach.

CARTER COUNTY—Carter Oil Co. et al's Leon Voorhees 1, cse sw 34-5s-2w, td 6470 ft, wocs. Hammond's Lile 1, sw se se 8-5s-1e, dr 475 ft.

COAL COUNTY—Shell Pet. Corp.'s Hill 3, se se nw 30-3n-10e, pb 4330 ft. Sinclair Prairie's Culver 1, ne ne sw 16-1n-8e, rur. Mitchell's Quiett 1, ne nw sw 35-1n-8e, dr 696 ft. Carter & Magnolia's James 1, sw nw sw 35-1s-8e, rur. Continental's King 1, ne sw ne 26-1n-8e, spd.

GARFIELD COUNTY—Sherry et al's Hoken 1, nw nw sw 32-20n-4w, td 6456 ft. Stanolind-Amerada's Brunken 1, sw sw ne 32-23n-4w, rur to dd.

GARVIN COUNTY—Carter et al's Wood 1, nw sw se 5-4n-3e, rng 7-in csg 3018 ft. McElreath & Suggett's Lasater 1, se se sw 2-2n-1w, td 2878 ft.

GRADY COUNTY—Stevens' Mays 1, ne ne ne 1-3n-8w, rig.

HARMON COUNTY—Lioalko Trust's Crasnoe 1, se se sw 14-3n-25w, sd 2870 ft.

HUGHES COUNTY—Phillips Pet. Co.'s Eberle 1, ne ne sw 12-5n-9e, td 5540 ft, bailing. Sivils et al's Montgomery 1, nw sw nw 7-9n-9e, td 1693 ft, 1200 ft oih 40 hrs. Blackwell O. & G. Co.'s Long 1, se ne nw 29-9n-9e, resetting 12-in csg 1695 ft. Sinclair Prairie et al's Wilkey 1, sw sw sw 23-9n-8e, sd 3025 ft.

JACKSON COUNTY—John Dickson et al's Wright 1, ne nw se 19-1n-19w, dr 3160 ft. Burnham's Oliver 1, nw nw se 26-1n-20w, dr 1890 ft. Ben Russell's Daniel 1, nw ne se 13-3n-20w, dr 65 ft. Jackman's Fee 1, sw sw sw 27-1s-24w, fsg 2685 ft.

JEFFERSON COUNTY—Red River Oil Co.'s Trout 1, se ne ne 6-8s-7w, sg 2125-2135 ft, td 2212 ft. Pearson et al's Dothitt 1, ne ne ne 24-6s-9w, sd 2180 ft.

JOHNSTON COUNTY — Shell Pet. Corp.'s Illinois Bankers Life 1, nw se ne 10-2s-7e, mir.

KAY COUNTY—Allen & Texas Co.'s Fulton 1, se se se 18-27n-4e, dr 1520 ft.

KIOWA COUNTY—Beeler & Klein's Parrish 1, se se nw 3-6n-15w, dr 75 ft.

LE FLORE COUNTY—McGraw et al's Tidwell 1, cnw se 17-3n-22e, sd 1750 ft.

LINCOLN COUNTY—Amerada et al's Zimmerman 1, sw sw ne 10-12n-5e, dr 4175 ft. Mid-Continent's Hillman 1, sw se ne 29-13n-6e, dr 1630 ft. Skelly's Sporn 1, nw ne sw 21-17n-3e, br.

LOVE COUNTY—Amerada-Stanolind's Westheimer & Daube 1, sw se sw 27-6s-2e, td 7363 ft, pb 2970 ft, flow 2400 bbls oil.

MARSHALL COUNTY—Helmerich & Payne's Taliaferro 1, nw se sw 26-5s-5e, dr 2315 ft.

McCLAIN COUNTY—Arab Pet Corp.'s Autry 1, nw nw nw 16-7n-3w, sd 8300 ft.

McINTOSH COUNTY—Dieckman's McIntosh 1, se se se 4-12n-17e, dr 500 ft.

NOBLE COUNTY—Stanolind-Amerada's Gilham 1, ne se se 14-22n-1e, rig.

OKFUSKEE COUNTY—Champlin Ref Co.'s Thompson 1, sw sw nw 7-13n-8e, fsg. Amerada-Stanolind's Wells 1, sw sw nw 7-11n-7e, sd 4503 ft.

OKLAHOMA COUNTY—O'Shaughnessy Inc's Berlowitz 1, se sw ne 9-12n-3w, dr 3685 ft.

OSAGE COUNTY—Midco et al's 1, nw nw se 11-23n-6e, sd 2893 ft. Gray & Tolson's 1, sw sw ne 33-25n-7e, dr 1800 ft. Stoner & Miller's 1, nw ne sw 18-22n-8e, dr 200 ft.

PAYNE COUNTY—Amerada-Stanolind's Pratt 1, se se se 29-19n-5e, td 3675 ft, testing. Denver Prod. et al's Pratt 1, nw nw nw 20-18n-3e, dr 4105 ft.

PITTSBURGH COUNTY—Oklahoma District Oil Co.'s Beeler 1, ne ne sw 7-7n-14e, rig.

PONTOTOC COUNTY — Sandback et al's Sands 1, ne ne ne 20-3n-5e, dr 1528 ft.

POTTAWATOMIE COUNTY—Wofford Bros' Sewell 1, sw sw se 14-7n-3e, rig.

SEMINOLE COUNTY—Tom Phillips & Kimraw Drlg Co.'s Chemperney 1, se se nw 7-6n-7e, dr 1135 ft. Amerada-Stanolind's Alexander 1, ne nw ne 14-9n-7e, pb 3434 ft & sd. Twin State's Hamm 1, se se sw 24-10n-7e, woc. Crosbie's Casey 1, cn½ n½ ne 30-6n-8e, rur. Arkansas Royalty Co.'s Kiker 1, se se ne 9-10n-7e, dr 580 ft.

STEPHENS COUNTY—Endicott et al's McFatridge 1, nw nw sw 11-3s-9w, dr 1450 ft.

TILLMAN COUNTY—Gulf Oil Corp.'s Wearmouth 1, se nw se 31-1s-16w, testing 4737 ft. Johnson, Young & Mitchell's Donahoe 1, se nw nw 7-4s-17w, dr 2260 ft. Gulf Oil Corp et al's McWilliams 1, nw sw sw 15-3s-17w, dr 2510 ft. Bernheim's Tate 1, ne ne nw 16-1s-19w, rur. Shirley Clum et al's Moriele 1, nw nw se 16-4s-14w, dr 2490 ft. Smith's Hammill 1-A, ne nw nw 6-5s-15w, sd 1243 ft.

NEW MEXICO

LEA COUNTY—Barney Cockburn & Rowan-Nichols Oil Co.'s H. G. Mattern 1, c sw se 7-22s-37e, elev 3426 ft, dr 3430 ft. C. & G. Oil Co.-The Texas Co.'s Ellen Weir 1, c ne ne 14-20s-37e, elev 3564 ft, top anhydrite 1348 ft, passed up small o&g producer at 3893 ft, dr 3932 ft. Conoco & California Co.'s E. M. Elliott 1, c sw sw 22-22s-37e, elev 3347 ft, flowed 288 bbls 39 degree gravity oil 24 hrs ¾-in choke on tubing from pay 3539-3552 ft. Culberson, Erwin & Stovall's J. S. Eaves 1, c sw nw 18-21s-33e, machine. Gulf Oil Corp.'s S. J. Carr, c nw sw 3-24s-37e, elev 3267 ft, dr 1310 ft; L. M. Buffington 1, c nw sw 13-25s-37e, elev 3091 ft, dr 2050 ft; S. T. Burk 1, c ne ne 28-19s-37e, elev 3602 ft, sul water 3985-87 ft, dr 3991 ft; E. A. King 1, c sw nw 28-21s-37e, elev 3469 ft, testing 3804 ft; F. C. King 1, c sw nw 5-23s-37e, elev 3371 ft, dr 1110 ft; W. T. McCormack 1, c ne ne 32-21s-37e, elev 3464 ft, td 3802 ft, used 1500 gals acid and swab 50 bbls oil, testing after using 3000 gals acid; A. B. Reeves 1, c nw sw 29-20s-37e, elev 3529 ft, co after shot, td 3859 ft; J. A. Stuart 1, c sw ne 10-25s-37e, elev 3120 ft, set cas, td 3265 ft. Humble's W. B. Farrell 1, c sw se 22-22s-37e, elev 3341 ft, dr 3390 ft; J. T. Lanehart 1, c ne sw 21-25s-37e, elev 3068 ft, td 3425 ft, flowed 20 bbls oil and 5,595,000 ft gas 24 hrs via tubing, testing.

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Jal Nat'l Gas Co.'s C. T. Bates-Humble 1, c nw sw 20-25s-37e, mim. Landreth Prod. Corp.'s E. H. Grizzell 1, c se sw 5-22s-37e, elev 3437 ft, dr 3200 ft. Harry W. Leonard et al's B. T. Lanehart 2, c se nw 21-25s-37e, dr 155 ft. Magnolia's E. A. Carson 1, c nw sw 28-21s-37e, elev 3463 ft, top salt 1348 ft, top lime 2700 ft, dr 3240 ft; Will Cary 1, c ne se 21-22s-37e, elev 3361 ft, top anhydrite 1108 ft, cem 7-in cas 3350 ft; Scharbauer & Eidson 1, c nw ne 29-16s-35e, lcn. Ohio Oil Co.'s W. H. Turner 1, c ne se 29-21s-37e, elev 3477 ft, sandy-lime pay 3710-3800 ft, swabbed 50 bbls, sd to use 3000 gals acid. N. G. Penrose & Rowan-Nichols Oil Co.'s Will Cary-Humble 2, c ne sw 22-22s-37e, elev 3345 ft, td 3570 ft, flowed 80 bbls before shot 80 qts 3520-54 ft and cas collapsed; Cary 3, c se nw 22-22s-37e, elev 3364 ft, rust 1150 ft; Cary 4, c sw nw 22-22s-37e, rust 1146 ft. Plains Production Co.'s R. L. Mosely-Repollo 1, c nw se 34-24s-37e, elev 3168 ft, sul w at 3550-3551 ft, pb to 3530 ft, set tubing 3270 ft, flowed 33½ bbls 10 hrs. Repollo Oil Co.'s J. T. Lanehart 1, se nw nw 28-25s-37e, elev 3028 ft, td 3302 ft, shot 150 qts at 3200-3302 ft, flowed 108 bbls oil 10 hrs testing; Frances Stuart 1, se nw se 10-25s-37e, elev 3114 ft, dr 2110 ft. Samedan Oil Corp.'s Marshall 1, c sw nw 12-21s-36e, elev 3540 ft, dr 3720 ft; C. U. Parks 1, sw sw sw 14-22s-37e, elev 3339 ft, water sand 3780-90 ft, pb fr 3800 ft to 3610 ft, shot 245 qts 3502-3610 ft, cas collapsed. Skelly Oil Co.'s J. V. Baker 2, c nw nw 27-22s-37e, elev 3341 ft, dr 1200 ft; Ellen Sims 1, c nw se 3-23s-37e, elev 3300 ft, dr 2310 ft; F. S. Stuart 1, c ne nw 15-25s-37e, elev 3107 ft, dr 800 ft. Sun Oil Co.'s B. T. Lanehart 1, c se se 20-25s-37e, elev 3042 ft, top anhydrite 971 ft, top salt 1145 ft, tested 22,000,000 ft dry gas, 1140 lbs pressure, td 2757 ft, killed gas to dd; J. R. Stuart 1, c nw ne 15-25s-37e, elev 3114 ft, shot 200 qts 3279-3380 ft, flowed 883 bbls 24 hrs 1-in choke on tubing. The Texas Co.'s E. L. Alexander 1, c lot 3, or c nw sw 7-21s-37e, elev 3504 ft, base salt 2530 ft, td 3835 ft, swabbed 26 bbls fluid per hr, 10 percent bs&w, testing; Edith D. Fanning 1, c se ne 4-24s-37e, dr 500 ft; W. T. Lanehart 1, c ne¼ 29-25s-37e, elev 3031 ft, top anhydrite 965 ft, base salt 2335 ft, gauged above 100,000,000 ft dry gas at 2770 ft, pay 3240-3280 ft, flowed 151 bbls oil 15 hrs open tubing, complete; L. L. Clardy 1, c se se 13-16s-36e, lcn. Tide Water's Anna Walden 1, c se ne 21-22s-37e, elev 3352 ft, dr 3380 ft.

EAST TEXAS

ANDERSON COUNTY—Gulf Oil Corp's M. J. Ross 1 (54.7-ac), Robt. Erwin sur, Camp Hill area, elev 487 ft, top Georgetown lime 5452 ft, dr 5520 ft.

Tide Water & Seaboard Oil Corp's J. B. Edens 15 (988.6-ac), Samuel Snider sur, Cayuga field, Trinity sand test, elev 313 ft, Pecan chalk 2245-2410 ft, dr 3950 ft.

BOWIE COUNTY—Westmount Oil Co. et al's R. H. Phillips 1 (115-ac), J. N. Hancock sur, 10 mi n Oak Grove, elev 340 ft, Georgetown lime 1533-1924 ft, top Paluxy sand 1924 ft, 1st stringer anhydrite 2735 to 2890 ft, dr 3050 ft.

CHEROKEE COUNTY—T. J. Wood et al's J. E. Huggins 1 (80-ac), Levi Jordan sur, 2 mi sw Rusk pool, elev 457 ft, base Pecan chalk 4480 ft, dr Austin chalk 4950 ft.

COLLIN COUNTY—Port Bolivar Co.'s O. G. Durning-Clarkston 1-A (140-ac), Wm. Creager sur. Pat. 1193, elev 722 ft, show O&G 3936-96 ft, dr chert 4032 ft; A Shirley 1 (50-ac), Gwyn Morrison sur, 1½ mi e Anna, mim 6000-ft test.

DELTA COUNTY—Delta Oil Co., Inc's J. H. McKinney 1 (231-ac) L. Hampton sur, lcn.

FALLS COUNTY—J. Edward Mills et al's Sam Grucholski 1 (40-ac), Dennis Herold League, 5 mi sw Kosse, elev 521 (est.) ft, top Pecan chalk 2114 ft, top Austin chalk 2765 ft, sd 2800 ft.

FANNIN COUNTY—E. V. Abernathy and A. F. Carter's G. D. Galloway 1 (320-ac), W. M. Rice sur, top Georgetown lime 1697 ft, sd 2225 ft. L. P. Kean et al's R. L. & W. M. Kelley 1 (160-ac), Wm. Kelley sur, top Georgetown Lime 2610 ft, sd 2880 ft.

FRANKLIN COUNTY—Earl Bateman Drl. Co.'s Eula Phillips 1 (38½-ac), Wm. Bridwell sur, elev 358 ft, Pecan chalk 1342-1580 ft, top Georgetown lime 3510 ft, dr 3730 ft. J. B. Bond & J. Z. Werby's T. J. Sanders 1 (42.3-ac), W. F. Dyer sur, elev 359 ft, top Pecan chalk 1262 ft, dr 2750 ft. Joe DeGrazier et al's F. M. Batts 1 (30-ac), F. M. Batts sur, elev 356 ft, dk. L. S. Flannery, Inc. & Stroube's J. L. Hedrick 1 (66.08-ac), ME&P Ry. sur, mim. Lucey Pet. Co. et al's W. N. Crawford 2 (25-ac), O. James sur, elev 370 ft, Pecan chalk 1597-1778 ft, top Georgetown lime 3468 ft, top Paluxy series 4131 ft, top sand 4158-4300 ft, completed flows 61 bbls. per hr via open 2½-in tubing; Crawford 1, SEc lse, cem sur cas. Humble's King & Hughes 2 (1053-ac), O. James sur, rig.

FREESTONE COUNTY—Tom Sharp and Paul Gunther's E. E. Lamb 1, Jas. Sparks sur, 3 mi se Fairfield, cem sur cas.

GRAYSON COUNTY—Olson Drl. Co.-James H. Gardner et al's SW Life 1 (160-ac), J. C. Jamison sur, A-865, 3 mi n Pottsboro, elev 767 ft, top Sylvan shale 4870 ft, Viola lime 4901-5096 ft, td 5890 ft, pb to 5350 ft, fsh 4 jts d. p. Port Bolivar O&R Co.'s Creed Taylor 1 (160-ac), J. Fitzhugh sur, 3 mi se Gunter, sd 3931 ft.

HOPKINS COUNTY—Dilworth S. Hager, W. P. Luse & Leon Russ' J. E. Warsham 1 (150-ac), A. O. Wetmore sur, dr 2930 ft.

HOUSTON COUNTY—Branch et al's P. S. Grifffffiths 1, Frank Johnson sur, 3 mi sw Crockett, lcn. Ellison, McBride, Haberle & Thornton's J. E. Bean 1 (40-ac), Eli Steadman sur, 1½ mi nw Grapeland, elev 482 ft, top Navarro 4245 ft, Pecan chalk 4660-4894 ft, top Austin chalk 5610 ft, dr 5830 ft.

KAUFMAN COUNTY—Colton and R. P. Lester's Barrow Bros. 1 (40-ac), J. D. Taylor sur, 8 mi ne Elmo, Trinity sand test, elev 528 ft, Austin chalk 2235-2681 ft, 8 degrees off vertical at 3600-3700 ft, pb to 2900 ft, re-drl hole. J. M. Scott and J. B. Woodside's E. Robinson 1 (80-ac), A Chirnio sur, 2 mi w Scurry, top Austin chalk 1200 ft, dr 2185 ft.

LAMAR COUNTY—Barrett, Saloman & Brooks' Haynes-McCuistion 1 (25-ac), A. W. Wright sur, 4 mi ne Garrett Bluff, elev 443 ft, Georgetown lime 275-738 ft, top Paluxy series 739 ft, sd 1900 ft. J. A. Forester et al's J. S. Woodward 1 (18¾-ac), J. W. Woodward sur, 1½ mi e by s of Minter, elev 402 ft, top Georgetown lime 2256 ft, Paluxy sand 3060-3144 ft, top anyhydrite 3735 ft, base hard anhydrite 4075 ft, broken to 4105 ft, sd 4516 ft.

LIMESTONE COUNTY—Dan H. Daugherty et al's Sallie Welch 1 (94-ac), Pedro Varella sur, 4 mi w Groesbeck, Austin chalk 2350-2650 ft, top Woodbine series 2890 ft, testing 3158 ft. C. F. Lytle et al's J. L. Thompson 1-T (141-ac), w side Mexia field, elev 459 ft, cem 7-in cas 6002 ft, td 6065 ft, tested salt water flow with gas pb to 6059 ft, testing.

NAVARRO COUNTY—E. M. Thomason Holding Co.'s Estes Bros. 2 (58.2-ac), Wm. Gilbert sur, 1 mi e Roane, elev 423 ft, top Austin chalk 1504 ft, hard chalk 1805-2131 ft, Woodbine sand 2717-2740 ft, tested sw, dry and abd.

RED RIVER COUNTY—J. S. Abercrombie Co.-Harrison Oil Co.'s Southern Pine Lumber Co. 1-A (392.57-ac), D. D. Bruton sur, 12 mi ne Clarksville, elev 407 ft, Georgetown lime 665-1020 ft, top Paluxy 1057 ft, Anhydrite 1740-1800 ft, top sand 2104 ft, tested water at 2110 ft and 2118 ft, coring 2250 ft. R. H. Manning and Texfornia Co.'s Hocker-Hughes 1 (80-ac), MEP&P Ry. sur, No. 642, 6 mi sw Lydia, sd 200 ft.

RUSK COUNTY—Pure Oil Co.'s W. H. Faulkner 1 (60-ac), Wm. Elliott sur, 5 mi e Mount Enterprise, Trinity sand, or 8500-ft test, elev 563 ft, Pecan chalk 2650-2890 ft, show gas when cut through fault at 2599-2609 ft, Austin chalk 3286-3450 ft, top Georgetown lime 3446 ft, stringer anhydrite 5320-5325 ft, top Massive anhydrite 5945 ft, tested sw at 6177-6298 ft, dr lime and shale 6840 ft.

TITUS COUNTY—Jule Alford, Tr., et al's J. E. Fry 2 (47.48-ac), I. P. Stern sur, about 1200 ft ne Fry 1, jkd. test, elev 333 ft, top Pecan chalk 1390 ft, dr 3200 ft, Hollandsworth Drl. Co.'s A. O. Brown 1 (52/100-ac), c lot 1, blk 41, Talco townsite, elev 377 ft, top Pecan chalk 1666 ft, top lime 3392 ft, dr 3520 ft. Humble O&R Co.-Ned B. Morris, Jr.'s W. H. Hughes 1 (6½-ac), Delgado sur, elev 371 ft, dr 250 ft. R. C. Horne et al's J. F. & L. Barton 1 (3-ac), M. V. Delgado sur, elev 361 ft, dr 1150 ft. Jones & Shelburne's Hazelwood 1 (10-ac), I. P. Stern sur, elev 342 ft, Pecan chalk 1320-1520 ft, top Red Beds 3238 ft, top Georgetown lime 3511 ft, dr 4110 ft; L. Stephenson 1 (71-ac), O. James sur, dk. W. P. Luse et al's W. T. Sullivan 1 (4-ac), M. V. Delgado sur, elev 371 ft, Pecan chalk 1635-1828 ft, top Georgetown lime 3440 ft, fsh dp 3748 ft.

OFFICIAL NOMENCLATURE MAP OF MID-CONTINENT AREA

SHOWS: Oil fields in green and gas fields in red, hand-colored.
Index giving location of each field and official name as designated by the various state nomenclature committees.
Cities, towns, county seats and principal streams.

AREA COVERED: East portion of Colorado and New Mexico, Southwest portion of Nebraska, States of Kansas, Oklahoma and Texas, Southwest portion of Arkansas, West portion of Louisiana.

SIZE: 66" x 90" SCALE 1" = 12 miles.

This map on linen attached to heavy spring roller in dust proof steel case.

E. C. JACOBSON

Phone 4-5419 530 McBirney Building.
Tulsa, Oklahoma.

Magnolia Pet. Co.-Humble's Lucy Blackburn 1 (80.51-ac), Ben Jones sur, mim. B. C. Morrison, A. M. Peairs et al's Lewis Sanders 1, c lot 1, blk 30, Talco townsite, elev 371 ft, Pecan chalk 1670-1860 ft, dr lime 3815 ft. Nivla Oil Corp.-Sutton & Hawkins' J. N. Kelley 1, NEc 15.76-ac lse, J. Salmon sur, A-506, elev 348 ft, Pecan chalk 1533-1730 ft, top Red Beds 3181 ft, top Georgetown lime 3640 ft, Paluxy pay 4228-4308 ft, run cas; W. H. Gray 1 (2-ac), blk 10, Talco townsite, elev 362 ft, dr 2300 ft. Red Iron Drl. Co.-Dean Bros' A. Cornelius 1 (3-ac), M. V. Delgado sur, elev 370 ft, dr 2800 ft. Stroube & Stroube's Stratton 1, dk. Tide Water Oil Co.'s C. M. Carr 1 (72-ac), M. V. Delgado sur, elev 358 ft, top Pecan chalk 1656-1773 ft, top Georgetown 3492 ft, top Paluxy 4163 ft, td 4340 ft, cem 6⅝-in cas 4161 ft.

SOUTH TEXAS

ARANSAS COUNTY—Buckingham Oil Co.'s McCambell 1, James Orick sur, 2 mi nw of Aransas Pass, td 7501 ft, pb 6545 ft, blew out while making dst, move in new rig.

ATASCOSA COUNTY—R. C. Lee, Tr.'s, U. A. Doumch 1, 152-ac tr, blk 10, J. T. Russell sur No. 1222. 3 mi n Poteet. td 3519 ft, set 7-in csg 4360 ft, top chalk 3503 ft, deepening. W. B. Hinton's Weigand 1, in Donovan sur No. 124, 14 mi e Campbellton, lcn dropped. Helvetia Oil Co.'s Susie Pratt 1, 176-ac tr, J. de la Garzo sur No. 46, 1 mi nw Anchorage, sp.

BASTROP COUNTY — Marts & Beavens' Parkford & Jenkins 1, center lot 24, Bastrop Town tr, sd 650 ft, in fresh water sand. J. E. Mills' C. O. Randle 1, 100-ac tr, B. Brymer sur, 4 mi se Cedar Creek field, td 2440 ft, 5 3/16-in csg 2228 ft, testing.

BEE COUNTY—Geo. M. Church et al's G. A. Ray 1, Anna Burk sur, 2 mi e Beeville, coring 4620 ft. Lonnie Glasscock's Holzmark 1, J. A. York sur, abt 1850 ft w Holzmark field disc well, coring 4296 ft. Fred Haworth, Jr.'s J. E. Copeland 1, Obed Marshall sur, 3½ mi nw Pettus, td 4252 ft, gas sand 3465-71 ft, pb and set csg 3523 ft, recemented, now wocs. Howeth & Swiger's C. A. Voss 1, Samuel May sur, Ab 230, 2½ mi sw Ray (West Tuleta) field, td 4019 ft, Pettus sand 4015-19 ft, dst show 110 ft plo, 7½ lbs pressure 10 min, set 7-in csg 4015 ft, wocs. Luling O&G Co.'s B. B. Ruhman 2-A, J. M. Thurston sur, ne Caesar field, d & a 3265 ft. Marine Oil Corp.'s J. C. Woods 1, 427-ac tr, J. Ryan sur, disc well, Beeville field, sd 5831 ft, Nichols & Quinn's J. R. Scott 1, blk 7, Howeth & Swiger sub 1, Uranga gr, sp and sd, wor. H. A. Pressey's R. T. Hicks 1, 1120-ac tr, Jose M. Uranga gr, ab 568, 4¾ mi s of Normana, td 3568 ft, broken sand, shale and shells 3482-3568 ft show dry gas, now arranging for csg.

BEXAR COUNTY — American Gas Co.'s Oliver No. 5, 400-ac tr, M. F. Rodriguez sur, Gas Ridge, co 3079 ft, Carter & Ingersoll's Louis Mann 1, 60-ac tr, John Christopher sur, 3 mi s Von Ormy, sd 1215 ft, for cas. Joe Deupree's Mrs. R. S. Nina (R. S. Coffey) 1-A, Rodriguez sur, 7 mi s San Antonio, sd 1200 ft, to recement csg at 1059 ft; R. S. Coffey 2, 300 ft due e No. 1-A, F. Rodriguez sur, dr 225 ft, sh; S. G. Winter 1, 100-ac tr, Fernando Rodriguez sur, 1 mi w of Russell 1, sd 1853 ft, 6⅝-in csg 1285 ft, wait on spudder to wo. H. J. Moore's Mrs. Lena Eisenhauer 1, 80-ac tr, Gertrude Rodriguez sur, 9 mi ne of San Antonio, dr 1031 ft. O. M. Owensby's Mina Coreth 1, 284-ac tr, Adam Stafford sur No. 49, E. Eckert field, still sd 1091 ft, (dropped until work resumed). H. B. Schumacher's Hilda Gillette 1, 49-ac tr, M. G. de Alamiz sur No. 20, 7 mi s San Antonio, sd 712 ft. F. M. Shaver's A. W. Bitter 2, Jose Baerrera sur No. 58, 2 mi nw Von Ormy, bailing 1050 ft. Fred Thorman's A. L. Salm 1, 330-ac tr, GH&SA RR sur, 11 mi sw San Antonio, sd 644 ft, for repairs, Woodward & Hardie's R. W. Devilbiss 1, John W. Devilbiss sur, 1 mi w Thelma, dr 2205 ft.

BROOKS COUNTY—The California Co.'s B. Garcia 1, tr No. 3 Las Mestinas de Gonzalina gr, Alta Mesa dist, coring 7902 ft. Fairway Prod. Co.'s Wm. Singer 1, sur 312, 1500 ft sw Alta Verde disc, lcn. Starr Dev. Co.'s Wm. Singer 1, sec 436, abt 700 ft Alta Verde disc, coring 1023 ft, test sul w in sand 1007-21 ft.

CALDWELL COUNTY—J. J. Elam et al's Francis-Brown-Cochran 1, W. F. Young sur, 5 mi e Luling, dr 1029 ft, shale. W. C. Jennings & Whittington's McMahan 1, James Pinchback sur, se Lockhart, td 2343 ft, pb to 2290 ft, in Eagleford, 5 3/16-in csg at 1995 ft, testing.

CALHOUN COUNTY—Blanco Oil Co. & Al Buchanan's P. H. Welder, D. L. Palmer sur, 1 mi ne Heyser disc well, lcn. Continental Oil Co.'s Austin (Vandenburg) 1, sec 12, blk "H," Pedro Garcia sur, 1 mi n of other heaving shale wells, Seadrift prospect, dr 4375 ft. Humble Oil & Refining Co. and Plymouth Oil Co.'s E. H. Welder 2, sur, ¼ in sw Heyser disc well sp, sur, sp mir. Matagorda Oil Corp.'s (Hilton & Miese) J. Brundrett 1, Wm. Little sur, sd 502 ft.

DEWITT COUNTY — Southwestern Dev. Synd. Ltd's W. L. C. Poetter 1, 590-ac tr, in Obed Marshall sur, 1320 ft w Slick field disc well, lcn, dropped until work begins. Universal & Gillespie's Schubel 1, C. Fitzgerald sur, abt 2 mi nw Yoakum, sd 1370 ft.

DUVAL COUNTY — Mills Bennett Prod. Co.'s sec 178, N. Kohler, dst 2619-33, show 1100 ft plo 7 min, set 7-in csg, wocs. Prop. Inc.'s C. S. Tinney 2, sur 8, Piedras Pintas, sd 3450 ft for repairs. Conservative Oil Co.'s DCRC 1, sur 51, 3½ mi sw of Gov't Wells field, coring 1625 ft. Dulce Oil Co. and Harvey & Henderson's E. R. Hagist 1, sur 291, ½ mi w Seven Sisters field. dst 2416-25 ft in Gov't Wells sur 200. 7 mi sw Driscoll field, sp. C. G. Glasscock's Milano Land & Gardens Co. 2, 330 ft nl, 213 ft el, sec 88, 4 mi se Loma Novia, sd 2000 ft for water. Frank J. Gravis et al's Gravis et al, sec 250, 9 mi w San Diego, td 5150 ft, dr into old hole 5060 ft, pb 4800 ft, and set whipstock. M. D. Mastin's D. Ruiz 1, sur 128, 1 mi w Hoffman field, fsh for ds 3003, set csg abt 2700 ft, perf 2604-10 ft, test showed nothing, perf again. W. C. McBride, Inc.'s C. & A. B. Cueller 1, sur 123, ½ mi w Hoffman field, dr 2135 ft. Navarro Oil Co.'s W. R. Peters 1, w 380-ac sur 39, n of Kohler field, dr 650 ft. John J. O'Hern's L. B. Carrillo 1, sur 192, 4 mi s Hoffman field dr 650 ft. Randon Oil Co.'s South Texas Bank & Trust Co.'s 1, lot 23, Central Securities sub, Diego Hinojosa, 5 mi sw of Realitos, dr 350 ft. Rogers & Rogers' Rita S. de pena 1. R. S. de Pena plat, El Mesquite Trinidad Vela gr, se Cole field. dr 2425 ft, Smith & Hamill's Juan Benavides 1, Jaun Benavides lands, E. Mesquite gr, dr 1250 ft. Stanolind O&G Co.'s Ira G. Yates 5. 990 ft ne, 1840 ft se sec 416. Labbe, mir, Starr Development Co., Inc.'s J. B. Peal, sur 796, 1 mi ne Lopez, lcn. The Texas Co. and Ohio Fuel Oil Co.'s DCRC 2-B, sur 193, 3½ mi w of Sarnosa field, dry and abd 2716 ft.

FRIO COUNTY—Amerada Pet. Corp.'s Halff & Oppenheimer 7, B. J. Gilman sur, Pearsall, td 3926 ft, pb to 3915 ft, testing; Arthur Michael 2, A. Lynch sur No. 321, sp; C. A. Miller 1, 394.3-ac tr in B. Satello sur No. 323, Pearsall, sp; W. R. Smith 3, J. V. Mason sur No. 322, Pearsall, sp. T. Davis et al's Halff & Oppenheimer 1, J. D. Clara sur No. 336, sd 5433 ft, top chalk 5330 ft, dropped until work resumes. Termo Co. of Texas' A. D. Arp 1, 102-ac tr, Blair sur, 4000 ft w Pearsall field, dr 5265 ft.

GOLIAD COUNTY — Keystone Royalties Co.'s C. B. Wood 1-A, Rios sur, 3 mi e Berclair, td 6712 ft, ru to wo. Claude Morgan et al's Mrs. W. O. Maetze 1, 466 ft nl and el of lse, G. Narrera sur, lcn for 5800-ft test. Zeni Oil Co.'s M. Lutenbacher 3, sw¼ of blk 25, Goliad Town sur, 2 mi s Goliad, dr 3615 ft.

GONZALES COUNTY—Tull et al's Boska 1, 61.2-ac tr, B. McClure sur, sd 2050 ft.

GUADALUPE COUNTY—J. E. Clarke's F. W. Williams 1, Green DeWitt sur No. 13, 4000 ft sw S. Darst Creek, td 2509 ft, chalk 2358 ft, 6¾-in csg at 2357 ft, pb to 2495 ft, completing. Clark & Weinert's W. O. K. Anderson 1, Green DeWitt sur No. 11, 6 mi s Kingsbury, dr 2245 ft. Eickenrolt & Gallagher's O. H. Jahns 1, 840-ac tr, Green DeWitt sur, 3 mi sw South Darst Creek, td 3134 ft in Buda, ream to 2750 ft, will ream to 2920 ft for dst. Pat Armstrong's J. Z. Fulcher 3, Robt. Smith sur, 2 mi sw Prairie Lea (was Jim Harper et al), sd 2477 ft.

HIDALGO COUNTY—J. T. Barlow et al's Chapa 1, tr 252, por 39, n side Samfordyce field, td 3200 ft, pb 2800 ft, dr plugs. Gulf States Oil Co.'s J. C. Engelman 3, lot 3, blk 70, Las Mestinas gr, 700 ft e Mestinas disc well, td 6812 ft, 7-in csg 6754 ft, perf 6688-6899, show 675 lbs with spray sw through ¼ choke, sd for orders. Maxwell-Mundy-Morris' Southland Dev. Co. (Hidalgo County Water Control & Impr. Dist.) 2, lot 11, blk 20, Alamo Land and Sugar Co. sub, Alamo gr, 4 mi s Alamo, sd 731 ft. Quintana Pet. Corp.'s John C. Engelman 1, lot 10, blk 94, Mestenas gr, 4 mi se Mestenas field, td 8904, cutting out stuck ds 7000 ft. Dayle L. Smith Oil Co.'s Fairbanks & Young 1, blk 44, porc 46, Reynosa Juris, 4 mi e Samfordyce field, sd 1856 ft. Union Sulphur Co.'s ARGL&I 7, tr No. 2309, blk 59, 4000 ft e Mercedes field, td 7608 ft, 5-in csg 7530, jetting through perfs 7540-49 ft; ARGL&I Co. 8, lot 2120, blk 87, N. Capisalle district, N. Mercedes field, td 7822 ft, 5-in csg 7822, pb to 7500 ft, testing; ARGL&I Co. 9, Farm tr 2268, blk 59, N. Capisalle District, ¼ mi e Mercedes disc well, td 7500 ft, prep to sdtr 7318 ft. G. W. Wheeler's F. Farias 2, sh 255, porc 39, Samfordyce area, sd 3200 ft for orders. Yates McCurry's Southland Dev. Co. 1, lot 13, blk 24, Alamo sub, 2½ mi s of Alamo, sp and sd.

JACKSON COUNTY — Steinberger Pet. Corp.'s Druchell 1, lot 6, Gale sub, Hayes ranch, N. Rodriguez sur, edge Edna gas field, ru.

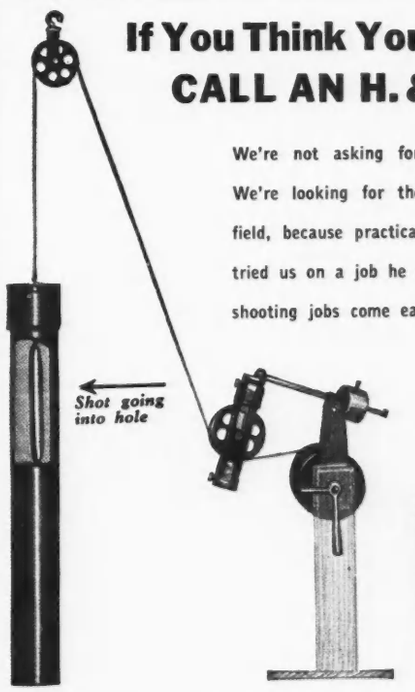
JIM HOGG COUNTY—J. J. Cosner's E. Vela Heirs 1, blk 5, Clark & Cowder sub, sur 571-572, sh 1, El Peynote gr, 6 mi se Henne-Winch Farris field, lcn. Theo Hicks et al's Kohler 1, blk 9, sub Noriscitas gr, 3 mi nw Hebbronville, lcn. Magnolia Pet. Co.'s Magnolia-Holbein 1, sur 36, Villareal sub, Agua Nueva de Arriba gr, dr 2510 ft.

JIM WELLS COUNTY—Gist & Graddy's B. W. Owens 1, Poitevent sur, nw Bentonville field, dr 1935 ft; J. Bennett 1, lot 87, sec 76, Holdeman sub, 2 mi w Premont field, dr 1265 ft E. M. Jones' R. Adams 1, se cor of blk 47, Waldron O&G sub of Robert Adams ranch, 1½ mi w Alfred, dr 4472 ft. La Jita Corp.'s Fred Erck 1, sec 15, 1 mi n of Bentonville disc well, dk; W. E. Pope 1, sec 20, 1½ mi w of King Ranch field, coring 4675 ft, dst 4518-24 ft show 290 lbs pressure, 10 min. Stanolind O&G Co.'s Frame & Bowers 1, sec 14, King Ranch sub, 1 mi n Bentonville disc, sp; J. E. Saim 1, sec 18, n offset discovery well Bentonville field, dr 5565 ft; J. J. Thompson 1, sec "A" King Ranch, 150-ac tr, dr 3525 ft; E. W. Raney 1, sec 16, King Ranch sub, w offset disc well Bentonville field, sand 5364½-75 ft, wocs. Texon Royalty & Lucey Pet. Co.'s Leona Dodd 1, sec 15, King Farm lots, nw offset disc well Bentonville, coring 6420 ft.

KARNES COUNTY—DeGraffe & Relle's Cochran 1, McConnell League, 5 mi ne Riddleville, ru and sd. Hichman et al, R. L. Barnett 1, Alex Hunter sur, dr 1050 ft. Worth Oil Co.'s E. Hysaw 1, 1069.8-ac tr, Don Erasmus Seguin gr, w of Kenedy, set surf csg, wor.

KERR COUNTY—Auld & Evans' I. R. Heffner 1, sec 13, BS&F sur, 25 mi nw Kerrville, td 6810 ft, ur 10-in csg.

KIMBLE COUNTY — Dr. B. R. Thomas'



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Rust 1, sw¼ sec 47, BS&F sur, 13 mi nw Junction, sp and sd.

KLEBERG COUNTY—McCork & Daybault's Killam 1, lot 7, sec 53, DT&I sub, 5 mi se Recardo, lcn.

LASALLE COUNTY—Davenport & Talbot's G. Watkins, sur 103, 25 mi e Encinal, sd 2729 ft. Kennedy & Johnston's Gilmer & Wildenthal 1, 140-ac tr in sur 283, partly ru and sd. Paul Meaders & Adair et al's Reed 1, sec 136, T. Conlan sub, 15 mi e and 10 mi s of Cotulla, wash over ds 2792 ft. W. H. Vernor's M. G. Jeffries 1, 150 ft nl and center of el and wl of sec 726, HE&WT Ry sur, lcn.

LAVACA COUNTY—Cole Pet. Co.'s F. A. Kurz 1, 930 ft nl, 330 ft wl of 75-ac tr, E. Goodman sur, 3½ mi n Shiner, mim. Goode & Mayton's M. Schaffer et al 1, 481-ac lse, W. R. Hensley sur, lcn.

LIVE OAK COUNTY—Dirks Bros.' A. E. Nichols 1, S. Ryan sur, dr below sur csg. Adolph Douvre's San Antonio Joint Stock Land Bank 1, plat 27, Tips subd, Richard Everett sur, 2 mi nw Three Rivers, dr 600 ft. Inter-Allied-Pet. Corp.'s Aetna Life Ins. Co. 1, J. Poitevent sur, 49.47-ac tr, 6 mi ne Dinero, dk and sd. J. J. McRoberts et al's D. D. Mahoney 1, 142-ac tr, Thomas Henry sur, 3 mi w Three Rivers, dr 450 ft. Windsor Oil Co.'s B. E. Stolte 1, tr 9, J. Ingram sur, Ab 261, n part of county, dr 2400 ft.

MAVERICK COUNTY—Thomson & Streeter's Joseph Wipff 1, sec 18, 7 mi w Chittim field, 10 mi n Eagle Pass, sd 220 ft, dropped until work resumes.

McMULLEN COUNTY—Dan Culver and G. C. Richardson's Wm. Fehler 1, G. Pittuck sur, w Calliham, lcn, dropped until work begins. F. Daybault's Matula 1, 100-ac James Carner sur, 2½ mi sw Calliham, sd 1018 ft, dropped until work resumes. R. J. Hill et al's Richardson 1, sur 158, 15 mi sw Tilden, sd 595 ft, dropped until work resumes. Ranier Oil Co.'s E. R. Hagist 1, sur 25, 20 mi fr se cor county, dr 350 ft. C. C. Shumway's Shiner Ranch 9, sec 51, Shumway sub, Shiner Ranch, 9 mi s Wetz, sp. Whisenant & Trenchard's Roos Bros. 1-A, ne sec 60, 1¼ mi sw Rhodes field, d and a 3073 ft.

MEDINA COUNTY—Frank A. Brown's Mary Winn 1, John Ward sur, dr 1063 ft, sandy shale. R. S. Bynum's Melton 1, 160-ac tr, sur 14½, dr 960 ft. N. C. Johnson's Taylor 1, 320-ac tr, sur 136, dr 900 ft.

MILAM COUNTY—J. O. Kilgore, Tr's W. R. Newton 1, J. Reed sur, Buckholt, sd 1052 ft.

NUECES COUNTY—Mills Bennett's J. K. Ordner 1, 330 ft sl and el of 120-ac tr, AB&M sur, No. 410, Ab 991, ½ mi w Saxet field, prep to sp. V. L. Blanchard's T. H. Isensee 1, blk 8, R. Shaeffer land sub, 1½ mi w Clarkwood, dr 5275 ft. Coastland Oil Co. & Keystone Royalties' (Paul Benedum et al) Page Bros. 1, s 50-ac share 2, Geo. Franks sub, 3300 ft w Saxet field, td 5931 ft, pb to hole and test below 5700 ft. J. T. Cox's John Haney, share 11, Harney lands, Gregoria Farias gr, 2½ mi se Callahan, sd 2085 ft. M. F. Hurlburt's J. C. Phillip 1, lot 9, 20-ac tr, sur 48, Flour Bluff Encinal Garden Tracts, 9½ mi se Corpus Christi, coring 7219 ft. W. P. Hinds' Edwin Flato 1, center blk 8, sec 107, 1½ mi sw Clara Driscoll field, sd 3880 ft for repairs. O. W. Killam's Betty Ellich 1, 86.28-ac tr, sec 109, Pauls sub, 4000 ft sw Clara Driscoll field, td 3899 ft, re-bldg dk and rig to wo. Southern Minerals Corp.'s Rand Morgan 2, lot 42, Artemus Roberts sub, AB&M sur, sec 411, Saxet, 9200 ft nw 5800 ft prod, coring 5790 ft. Terminal Oil Products Co.'s R. V. Thurman 1, sw¼ sec 10, Flour Bluff Garden Tracts, Rincon del Oso Grant, coring below 4950 ft.

REFUGIO COUNTY—Mills Bennett Prod. Co.'s Fred Walzel 1, 330 ft nl and el of sec 13, Bonnie View sub, E. Lopez sur, 7 mi s Refugio, dr 1250 ft. Tide Water Oil Co.'s E. G. Landgraf 1, 466 ft nl and el of 220-ac tr, J. Collyer sur, eastern portion county, lcn.

SAN PATRICIO COUNTY—Benedum & Trees' Mrs. E. H. Welder 2, sec 19, Welder Ranch sub, 3½ mi ne Sinton, td 7019 ft, pb & wocs; E. H. Welder 3, sec 19, Welder Ranch sub, dr 4750 ft. C. B. Bunte's W. C. Mayfield 1, tr 11, Roos sub, 2 mi n White Point field, sd because of litigation. Cage Prod. Co.'s Mayo 1, Joe Fessenden sur, ½ mi nw Taft prod, completing in 4000-ft sand. Centennial Oil Co.'s Chiltipin Creek 2, Creek Bed tr No. 4, mim. O. W. Killam's J. F. Green Est. 1, 782-ac tr, R. Ross sur, 1½ mi sw Taft field, sp. Joe Lundin & Rowan and Hope's Mrs. E. H. Welder 1, sec 20, Welder Ranch sub, 2½ mi sw St. Paul, dr 2250 ft. Plymouth Oil Co.'s E. H. Welder 2-D, sec 4, Welder Ranch subd, 1 mi e Sinton field, prep to mim. Portilla Oil Co.'s E. H. Welder 1, sec 5, Welder Ranch sub, d & a below 6000 ft.

STARR COUNTY—J. F. Anderson's Yzaguirre 1, 139-ac tr, porc 79, coring 1810 ft. Bishop & Henshaw's W. D. Martin 1, sur 627, 13 mi n Rio Grande City, dr 2300 ft. Porter Evans' SCCC 1, porc 89, 10 mi se Rio Grande City, mir; H. F. Ferry 1, blk 3, Evans sub, Ferry lands, porc 86, 7 mi se Rio Grande City, ru. H. C. Harter's Sanchez 2, lot 3, sh 72, por 72, 9 mi n Roma, coring 1010 ft. Killam & Staggs' S. D. Ricaby 2, porc 83, Camargo Juris, 3 mi e Rio Grande City field, dr 1850 ft. Larkin & Warr's Kelsey Bass 1, lot 8, Coastal sub, porc 87, Barbacosa area, dr 4560 ft. Ed Leach's Wardner Trustee (Donna Est., Inc.) 1, porc 84, sd 2149 ft.

WEBB COUNTY — French Oil Corp.'s S. Benavides 1, sec 2254, 3 mi n Oilton, dr 1125 ft.

WILLACY COUNTY — Shell Pet. Co.'s Yturria Land & Cattle Co. 1, sh 64, San Juan de Carritos gr. La Sal Veia prospect td 5486 ft, pb to 4600 ft, dr 5210 ft in sdtr hole.

WILLIAMSON COUNTY — Fritz Fuchs' Jackson 1, 660 ft nwl and 330 ft swl of Fred Murray 80-ac tr, H. Owen sur, dk. Graham et al's V. F. Pfluger 1, 2083 ft el, 4350 ft sl of J. Jordan sur, near Coupland, sd 300 ft. James H. Holdeman et al's Amor Forwood 1, 160-ac tr, HT&B Ry sur, sec 4, sur 14, dr 965 ft. W. H. Moody's J. F. Stiles 1, 230-ac tr, J. Bevil sur, ½ mi sw Thrall, lcn.

WILSON COUNTY—Otto Hierholzer's E. M. Hierholzer 1, B. Salinas sur, 12 mi sw Floresville, lcn. A. G. Reimenschneider's Lon Harrell 2, 209-ac tr, Manuel Baerrera sur, 5 mi s of Floresville, sd 740 ft.

ZAPATA COUNTY—Ivan Howard et al's Y. Martinez 2, blk 1, sur 241, 4 mi nw Cuellar field, dr 1900 ft. R. A. Mitchell's P. Bustamante 1, sh 32, Fansler Partition, Comitas gr, 1 mi sw Escobas field, d & a 1000 ft. J. J. Perren's Uribe 1, blk 31, Perren sub, sd 485, San Ygnacio sub, Borrego gr, 12 mi ne San Yganacio, ru & sd.

ZAVALLA COUNTY—Bay Oil Corp.'s Nat'l Bank of Commerce 1, sec 43, blk "A," AB&M sur, 16 mi se Batesville, coring 6200 ft, 7-in csg 5724 ft. W. L. Bridges' E. B. Flowers 1, sec 19, blk 1, I&GN Ry sur, sd 450 ft. Frank Buttram et al's Whitecotton 1, AB&M sur No. 1, sd 5461 ft, top chalk 5281 ft. Leona Oil Corp.'s George West 1, C. Bustillo sur No. 1, top chalk 5760 ft, sd 6020 ft, contract depth.

TEXAS GULF COAST

AUSTIN COUNTY—W. H. Mitchell's Fenner 1, s of Kenney, J. Fitzgibbons sur, ru.

BRAZORIA COUNTY—Gulf's Fairfield 1, Lockridge prospect, A. Robeson sur, dr shale 8018 ft. Texas Gulf Prod. Co.'s Sparks 1, Angleton prospect, Wm. Roberts sur, woc 5872 ft. Strake Pet. Corp.'s Poole 1, Poole Ranch prospect, W. Eggers sur, sd 6739 ft. Deep South Oil Co.'s Demmics 1, H. & T. B. sur, sec 40, dr shale 1820 ft.

GALVESTON COUNTY—Shell's Maco Stewart 1, Hitchcock prospect, J. Spillman sur, dr shale 3223 ft.

GRIMES COUNTY—Crooke Brothers et al's Greer 1, near Carlos, P. B. Connor sur, dr shale 2845 ft.

HARDIN COUNTY—Resource Prod. Co.'s Howth 1, sw of Ariola, A. J. Cotton sur, dr sand 4810 ft.

HARRIS COUNTY—Zeni Oil Co.'s W. A. Perkins 1, Hockley dome, A. Sherrell sur, dr sand 5313 ft.

JEFFERSON COUNTY—H. J. DeArmond's State National Bank 1, ne of Amelia, E. Bigner sur, abn 7021 ft. Magnolia's Funchess 1, Cheek area, H. & T. B. sur No. 6, abn 9098 ft. C. B. Megarity's Gardener 1, s of Amelia, S. Stivers sur, ru. C. H. McSpaddin's Burrell 1, Cheek area, Wm. Smith sur, dr shale 7173 ft. Shell's Carpenter 1, Nome prospect, M. Peveto sur, sd woc at 6023 ft. Sun's Broussard 1, Labelle prospect, B. Blackmon sur, woc 8693 ft. C. W. McPhil's Owens 1, n of Port Arthur, sd 2275 ft.

MATAGORDA COUNTY—John Deering's Estill 1, Cedar Lane prospect, Tone & Jamison sur, sd 6868 ft. Marathon Oil Co.'s Kountz 1, Midfield prospect, I. & G. N. sur No. 11, dk. Sun's Craig 1, e flank of Hawkinsville dome, T. Williams sur, woc 5175 ft.

MONTGOMERY COUNTY—W. O. Belnoski's Wood 1, Willis area, Wm. Weir sur, dr shale 3641 ft.

ORANGE COUNTY—Coker Oil Co.'s Mansfield 1, s of Vidor, J. W. Hill sur, dr shale 2240 ft. Tide Water's Brown 1, Cow Bayou prospect, M. Latham sur, dr shale 4109 ft.

POLK COUNTY—Hawkeye Oil Co.'s Harder 1, 2 mi nw of Livingston field, A. Viesca sur, abn 4183 ft. Turnbull & Irwin's Roberts 1, Ace area, J. F. DeRumayor sur, dr shale 4831 ft.

SAN JACINTO COUNTY—Jack Frazier's Randolph 1, Evergreen area, Vital Flores sur, dk.

WALKER COUNTY—Boone Bros.' Thompson Lbr. Co. 1, w of Trinity, Jose Ortego sur, dr shale 2030 ft. L. M. Gay et al's Stubblefield 1, w of Trinity, G. Badilla sur, dr shale 337 ft.

WASHINGTON COUNTY—Sun's Lauter 1, Clay Creek, se flank of field, N. Clay sur, dr shale 6170 ft. Carl Dyer's Thomas 1, n of Brenham field, H. Hensley sur, dr shale 780 ft.

WHARTON COUNTY—Smith & McDannald's Presmeyer 1, Lakeview prospect, H. & T. C. sur No. 10, dr shale 4709 ft. Sterling O. & R. Co.'s A. Genzer 1, East Bernard prospect, J. Scott sur, abn 7871 ft.

NEW PRODUCTS FOR THE FIELD
Machinery • Tools • Catalogs • Books

REVERSIBLE RATCHET WRENCH
J. H. Williams & Co.

J. H. Williams & Co., 75 Spring St., New York City, has introduced a new line of heavy duty reversible ratchet wrenches knows as the superector. These wrenches embody several unique structural and design features which are distinct improvements in this type of tool, the manufacturer claims. Outstanding among them are: Quadruple pawls, instead of the usual two, provide double bearing and strength with greatly increased durability. Handles are drop-forged, not cast, to utilize the extra strength afforded by the pawls.

Williams Ratchet Wrench

Built for rapid operation in the most severe service such as bridge, structural and other work requiring strong, fast-action tools, the new wrench is made in 5 sizes—24-inch to 48-inch. Both hex and square sockets, with hole extending clear through, openings 1 1/16- to 4⅝-inch, turn nuts on any length of bolt.

AIR HOSE
The B. F. Goodrich Company

Hipress air hose, a new product designed for all types of air tool applications, has been announced by The B. F. Goodrich Company, Akron, Ohio.

This hose is a combination construction made in long lengths. The inner carcass consists of four plies of specially woven duck. The outer carcass is a tight braid of high tensile cords which are applied with a tension ten times that normally used on long length braided hose. Between the inner and outer carcass is a substantial insulation which serves as a secondary tube to seal off penetration of air through the walls of the hose and to cushion blows from the outside.

The wrapped construction of the inner carcass provides an ideal backing for the tube due to the fine weave of the fabric. This is particularly valuable when tube is subjected to softening from internal heat. Due to the bias design of the wrapped fabric, any air or fluid which reaches it travels only a short distance before reaching terminal point of the yarn, thus preventing penetration throughout entire length of hose.

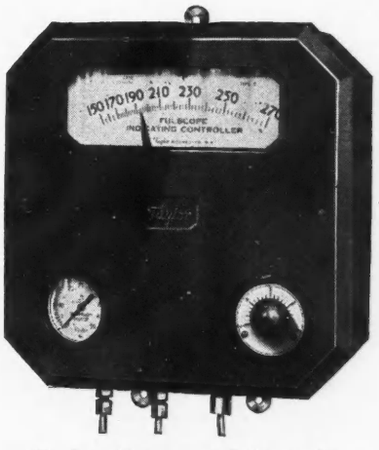
The tube is made of a special rubber capable of resisting both oil and heat. Not only is it claimed that this tube will last longer in air hose service where oil is present but that it will not break into loose particles and clog the tools. The rubber cover of hose is compounded to withstand abrasion and abuse.

Hipress air hose is furnished in three sizes, ½-inch, ¾-inch and 1-inch, and will be made in 500-foot lengths.

CONTROLLERS
Taylor Instrument Companies

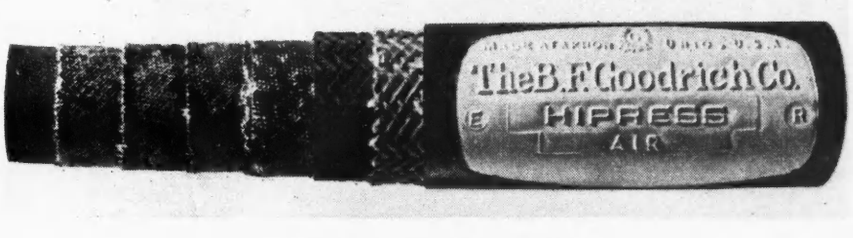
Taylor Instrument Companies, Rochester, New York, have put on the market a moderately priced, air-operated controller of the indicating type, for the many processes where close throttling is imperative but a record of the processing is not essential

The outstanding features specified are either high-range or full-range sensitivity, as required, control point adjustment to any value within the control



Taylor Air-operated Controller

range, controller action reversal in the field by altering the position of a link, many standard control ranges to choose from within the limits of minus 100 and plus 1200 F., or full vacuum and 3000 pounds pressure, and temperature controllers equipped with mercury-, vapor-, or gas-actuated tube systems.



Goodrich Hipress Air Hose

INSTRUMENT TRANSFORMERS
General Electric Company

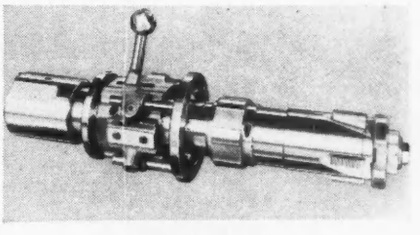
Several new lines of current and potential instrument transformers, in voltage ratings of from 23 to 161 kilowatts and suitable for oil or Pyranol filling, have been announced by General Electric Company. Sizes and weights have been reduced, and insulation factors increased in the new transformers.

In the new current transformers the primaries are wound on porcelain spools, which serve as the main part of the insulation between the primary and secondary circuits. The 23- and 34.5-kilowatt transformers each have one porcelain-spool unit; for 46 kilowatts and above, each transformer has two or more porcelain-spool units connected in cascade. The current transformer element is mounted in a shallow base and extends up into a porcelain shell, which is used as the high voltage bushing.

The new potential transformers are designed for use only on 3-phase, 4-wire grounded systems. They replace the single-bushing, conventional type. In the lower voltage classes, 69 kilowatts and below, the units consist of a single core-and-coil assembly mounted in a shallow tank and extending up into a porcelain shell which serves as the high voltage bushing. In voltages above 69 kilowatts, the transformer consists of two or more core-and-coil units, mounted vertically and connected in cascade.

COLLAPSIBLE TAP
Landis Machine Company

Landis Machine Company, Waynesboro, Pennsylvania, recently introduced a collapsible tap of interesting design involving the use of pilots to insure concentricity of the thread being tapped with other parts of the casting. The body of the tap is of special length to reach to the bottom of a deep hole in a steel casting tractor part. The pilot ahead of the chasers lines



Landis Collapsible Tap

up the tap with bore of the hole which is to be tapped. The rear pilot is made in the form of a collar fitting over the tap body. It fits a reamed hole near the top of the casting with which it is necessary to maintain concentricity. Both pilots are made of steel, are hardened and ground, and are made to revolve with the work in order to prevent siezing in the work. Pilot arrangements suitable for the requirements of practically any type of job can be furnished with the Landis Style LT Collapsible Taps in all sizes from 1⅜-inch to 12-inch inclusive.

This Week with the Industry's EQUIPMENT SUPPLIERS

Bridgeport Enlarges Gulf Coast Services

Buildings are under construction and stocks are being moved into Rodessa, Louisiana, for the new Bridgeport Machine Company branch store at this point. A complete line of all equipment used in the development of the territory is now in transit and the new store will be in a position to make deliveries and render services within a few days.

New and used sales and rental equipment will be carried, and 24-hour service will be maintained. E. M. Johnson, who has been sales representative in the Pampa, Texas, territory, will have charge of the Rodessa store.

In connection with the opening of the Rodessa branch, J. M. Loban, who has been in charge of the Bridgeport branch at Kilgore, Texas, has been transferred to Shreveport. Loban will have supervision of the Rodessa store acting as a special sales representative in Shreveport and surrounding territory.

Guy A. Tompson Made Taubman Vice President

Guy A. Tompson has been elected vice president in charge of sales for Taubman Supply Corporation. He will continue to make his offices at the headquarters of the company in Tulsa. Tompson was purchasing agent for The Empire Companies, Bartlesville, prior to joining Taubman Supply Corporation on January 1, 1936.

New Buda Distributors Appointed in Houston

The Buda Company of Harvey, Illinois, has appointed W. H. Benduhn and A. R. Flournoy as exclusive distributors of Buda oil field engines and power units for Texas, New Mexico and Louisiana, and they are now operating under the name of Buda Engine & Equipment Company, Inc. In addition to being joint owner with

GUY A. TOMPSON

Flournoy of Buda Engine & Equipment Company, Benduhn also is official factory representative for The Buda Company in the territory named.

Headquarters of the new company are at 407 Velasco Street, Houston, where a complete stock is maintained. Buda Engine & Equipment Company will in the near future establish branches at Kilgore, Dallas and at some point in West Texas. At each of these points complete service facilities and stocks will be maintained.

Although Buda Engine & Equipment Company is a separate organization from The Buda Company, it is in every other respect an integral part of the latter's sales and service departments.

Buda Engine & Equipment Company handles nothing other than Buda equipment, with the exception of a complete line of engine and power unit accessories, V-belt and chain drives, and other miscellaneous equipment necessary to make engine installations complete.

Approximately 5000 oil men were served at a buffet luncheon held at the International Supply Company plant, Tulsa, during the International Petroleum Exposition last month.

Robert E. Allen Joins A. O. Smith Corporation

Robert E. Allen, well-known California oil man, has joined the staff of A. O. Smith Corporation. Allen has served for seven years as assistant oil umpire of California, which position he resigned to take up his new duties.

He hails from the oil country of northern West Virginia, where he dressed his first bit while working in the old Ciaro field during his high-school vacations. Since that time, with the exception of two years spent in the engineering departments of Pittsburgh district steel mills, he has been in the oil business.

After graduating from the University of West Virginia, he came to California, doing work in the Salt Lake, Santa Maria, and Midway fields. Shortly after his arrival Los Angeles Basin became active and he saw service in Long Beach, Santa Fe Springs, Torrance and Rosecrans while with Interstate, Miley Keck and Sentinel Oil Companies. Then came consulting work in New Mexico, Texas and Mexico, followed by two years of exploration work in Australia.

Back in California, he joined King C. Gillette in the townlot area of Huntington Beach, later in Los Cerritos and then in Ventura as field superintendent for Continental Oil. He joined the umpire's office as assistant in 1929, serving under F. C. Van Deinse, H. P. Grimm, Neal Anderson and recently under J. R. Pemberton.

A. H. Frauenthal Becomes Bantam Vice President

The Bantam Ball Bearing Company has announced retirement of Karl Herrmann as vice president and general manager. He is being succeeded by A. H. Frauenthal, formerly assistant general manager.

Mr. Frauenthal came to the Bantam organization in 1930. Since that time he has spent several years in the field as sales engineer in various parts of the country previous to coming into the home office. After several years as a divisional manager in charge of sales, engineering and manufacturing, he was appointed as assistant general manager of the company.

Grothaus Made Vice-President Of Allis-Chalmers

L. W. Grothaus was recently elected vice president of Allis-Chambers Manufacturing Company, Milwaukee, Wisconsin. He has had 32 years of wide experience with that organization, at first working successively in the Norwood Shops, the purchasing, drafting, engineering and sales divisions, being made a member of the War Industries staff during the war, then becoming district sales manager first of the Minneapolis office and later of Cleveland. In 1925 he became assistant manager of the electrical division, first at Norwood and later at Milwaukee, and was made general representative of the company in 1931 and assistant to the president since 1933.

Squeaks from the Bull Wheel

So He Did

"Where did you get the black eye?"

"I got into an argument with a smart guy about driving in traffic."

"Why didn't you call a cop?"

"I said a smart guy, didn't I."

Surely, Mother

Mother (on entering the room unexpectedly): Well, I never—

Daughter: Oh, mother, you must have!—Typographic.

Forewarned

Recently the young son of a Columbia University professor spent the week-end on a dairy farm where he acquired considerable knowledge. Upon his return home he immediately looked up one of his friends and related his experiences. "If you ever go to a farm, Jimmie," he cautioned, "and you see a big cow off to herself, in a stall with bars, and she has a ring in her nose and don't have any faucets, she's a bull and you'd better keep clear away from her."

Defective Farce

The following is clipped from a small town paper:

"Our paper stated last week that Mr. John West is a defective in the police force. This was a typographical error. What we meant to say was that Mr. John West is a detective in the police farce."

Both, By George!

Teacher: Tell me if the word "trousers" is singular or plural.

Pupil: Trousers is singular at the top and are plural lower down.

Limited Capacity

Customer: Give me some ginger ale, please.

Waiter: Pale?

Customer: No, just a glass.

Step On It

A polite motorist, passing through a Western village, wishing to show proper respect for the village ordinances, accosted a street corner policeman.

"What is the speed law here, please?"

"Ain't got none," replied the cop; "you fellers can't get through here any too fast fer us."

Plain Truth

Vacationist: "Any big men born here?"

Native: "Nope. Not very progressive 'round here; best we kin do is babies. Diff'rent in the city, I s'pose."

They Would

It is reported that if the truth were known, it was the dogs on the Admiral Byrd South Pole expedition that first discovered the pole.

A Wonder

"What do you think of a husband who will constantly deceive his wife?"

"I think he's a wonder."

Should Be Lucky

A clergyman accompanied by two charming girls stood admiring the beauties of a little stream. An angler passing by said, "Any luck, pardner?"

"Sir?" replied the parson with dignity, "I'm a fisher of men."

"Well," retorted the fisherman, glancing admiringly at the girls, "you have the right bait."

When

At the wedding reception the young man remarked: "Wasn't it annoying the way that baby cried during the whole ceremony?"

"It was simply dreadful," replied the maid of honor. "When I get married I'm going to have printed right in the corner of the invitations:

"No babies expected."

Opinions Differ

"Mollie is all broken up because she found out her husband had been married before."

"Doesn't she believe in divorce?"

"Yes, but evidently he didn't."

Sympathetic

Gent—"I'll have you know I'm nobody's fool."

Lady—"Well, don't feel too badly about it. Some woman will get you yet."

She Knew the Answer

"Last night a millionaire offered me a thousand-dollar check if I'd yield to his kisses," confided one chorine to another.

And the other advised, "Well, let's hurry down to the bank and cash it."

Asserting Himself

Timid Husband—Woman, er, ah, if you and your mother keep on nagging me, you're going to bring the animal out in me.

Sarcastic Wife—Then we must be careful. A mouse always scares us to death.

Tit for Tat!

"How did Jerry get the black eye?"

"He refused to marry Alice."

"How did he get the broken nose?"

"He married her!"

A Flyer

"Why did you break off with your aviator boy friend?"

"Oh, he had a feeling the sky was the limit when we were alone."

Quick Stopper

"Did I tell you that Donald took me out in his car last night, mother?"

"No. Did you have any trouble keeping him from going too far?"

"Not a bit. He wanted to pet as soon as we'd turned the corner."

It's the Salary

"Don't expect me to be like your other stenographers and show my knees all the time."

"Oh, you're too modest for that, are you?"

"No, but my salary is."

OIL COMPANY OFFICE and FIELD FORMS

. . . available at mass production prices

After carefully reviewing the forms of a number of oil companies, The Gulf Publishing Company has made up six standard forms listed below and has produced these in such quantities as to enable oil companies to secure them at substantial savings.

These forms are printed on 16 lb. Bond Paper. They are substantially bound. Duplicates are printed on colored bond and perforated, pencil carbon included with each book.

Forms will be shipped prepaid at prices shown below. Samples will be sent upon request.

Number	Kind of Form	PRICE 1 Book	5 Books	10 Books
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Form 101	DAILY TIME RECORD (In duplicate—100 sets to the book)	1.40	6.00	9.50
Form 102	DAILY GAUGE REPORT (In duplicate—100 sets to the book)	1.40	6.00	9.50
Form 103	WELL LOG AND RELATED DATA (8½x11, Printed both sides—100 to book)	1.50	6.50	10.50
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Every Sixth Man is *Your Man*

He checks and inspects J & L pipe quality to make sure you get dependable service and long-time satisfaction from every length of J & L seamless pipe.

The uniform high quality so necessary in all oil country tubular products is assured when you specify J & L Seamless steel pipe.

You get this dependable high quality because every sixth man in the J&L seamless steel tube department is really *your* man. His job is to see that the pipe you buy measures up to the J & L standard of quality. To assure this quality a series of painstaking tests and inspections has been developed covering every step in the manufacturing process.

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This rigid inspection system is one important reason why pipe users throughout the entire petroleum industry look to J & L for all their casing, tubing, drill pipe and line pipe requirements.

You, too, will be sure of dependable trouble-free service when you specify J & L Seamless Pipe.

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Just off the press—a new J&L Handbook, OC 3—"J & L Tubular Products for the Oil Industry." Contains interesting information on pipe manufacture and helpful designing data. Send for your copy now. No obligation!

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J&L PIPE

J&L SEAMLESS
DRILL PIPE · CASING · TUBING · LINE PIPE

If I Could Talk to Each Executive across his desk...

HERE IS WHAT I WOULD SAY:

"Your investment in every well is too great to take any chance whatever with equipment for guiding, floating and cementing strings of casing. Your field men know that I'm "tops" in safety and efficiency and they want me on every job.

Of course it's YOUR casing and YOUR well, but if you had been down in wells like I have you'd know what hard knocks and high pressure really are, and be mighty glad to let me take care of things for you."

and to Every Field Man I'd Say...

Safety and Economy are always present in full measure in every unit of Baker Cement Equipment. You are always certain of a balanced combination of the 3 vital features required for Guiding, Floating and Cementing strings of casing of *any* length . . .

1—STRENGTH

Baker gives you a heavy seamless steel shoe or collar containing a plug and valve which will withstand any pressures encountered in a well—with an ample factor of safety.

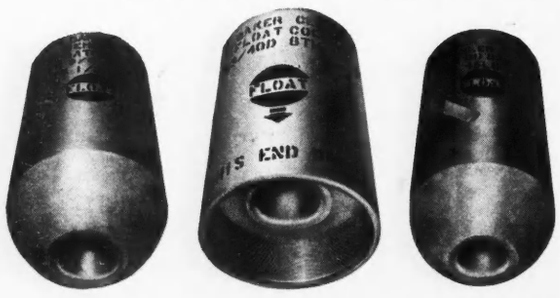
2—VALVE EFFICIENCY

Baker provides circulation areas large enough to permit unrestricted passage of cement but small enough to retain a "wash-down" action. The buoyant Bakelite Ball floats in rotary mud or cement slurry and provides an instant, leakproof double-seal against either high or low pressure.

3—DRILLABILITY

Baker alone provides complete drillability with a plug made of concrete and a valve made of Bakelite (set vertically in the plug)—both being materials which are easily and quickly drilled up and circulated out of the hole. You can core immediately below the shoe, or drill safely ahead—no metal fragments ever are present to slow up or interfere with future operations.

Interesting details and illustrations are on Pages 169 to 180 of the 1936 Composite Catalog; or we will gladly send free to any oil man the complete Baker Catalog.



For average conditions use a Baker Cement Float Shoe . . .

plus a Baker Cement Float Collar, if the string is long and heavy.

A Baker Cement Whirler Float Shoe provides the ultimate in cement distribution.

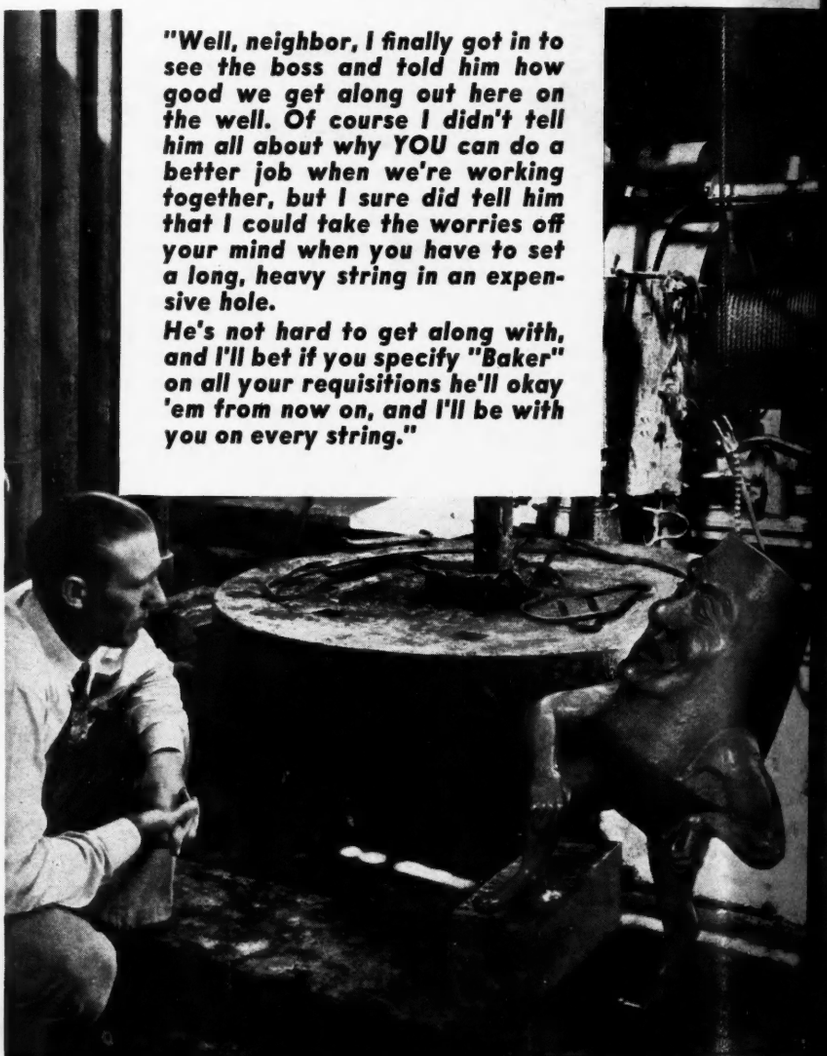
BAKER OIL TOOLS, INC.

POST OFFICE BOX 71, HUNTINGTON PARK CALIFORNIA

COALINGA • TAFT • HOUSTON • OKLAHOMA CITY • TULSA • NEW YORK

"Well, neighbor, I finally got in to see the boss and told him how good we get along out here on the well. Of course I didn't tell him all about why YOU can do a better job when we're working together, but I sure did tell him that I could take the worries off your mind when you have to set a long, heavy string in an expensive hole.

He's not hard to get along with, and I'll bet if you specify "Baker" on all your requisitions he'll okay 'em from now on, and I'll be with you on every string."



BAKER CEMENT EQUIPMENT